UNIV.OF
TORONTO
LIBRARY

Digitized by the Internet Archive
in 2012 with funding from
University of Toronto

http://archive.org/details/presidentsreport1930univ

UNIVERSITY OF TORONTO

President's Report

FOR THE YEAR ENDING
30TH JUNE, 1930

1929/30

PRESIDENT'S REPORT

1929-1930

To the Governors of the University of Toronto:

GENTLEMEN:

I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30, 1930.

The total staff of the University and University College numbered 725, of whom 105 were professors, 76 associate professors, 53 assistant professors, 144 lecturers, associates (in medicine and dentistry) and instructors in the College of Education, 2 directors, 1 director of field work, 344 demonstrators, fellows and instructors with sessional appointments.

The total number of students in attendance was 7,178, of whom 4,382 were men and 2,796 were women, 6,759 being registered in the colleges and faculties, and 419 in the departments. The number of students proceeding to degrees was 6,018, and to diplomas 536.

The following retired:

William James Loudon, B.A., professor of mechanics; James Playfair McMurrich, M.A., Ph.D. (Johns Hopkins), LL.D. (Michigan, Cincinnati), professor of anatomy, and dean of the School of Graduate Studies; James Brebner, B.A., LL.D. (Queen's), registrar.

Dr. J. P. McMurrich graduated from this university at an early age with a brilliant record, which he so enhanced by postgraduate work at Johns Hopkins that soon he began a career in teaching and research which was spent in several universities. From Michigan he returned as head of the department of anatomy to his *Alma Mater* in 1907. During his tenure of office he not only shed lustre on the department but succeeded in having the new building erected which will stand as a memorial. He became the first dean of the School of Graduate Studies, the standards of which he did much to establish. An anatomist of international repute, a broadly versed scientist, and a genuine humanist, as is shown in his recent edition of *Leonardo Da Vinci as an anatomist*, Dr. McMurrich is above all a man beloved by his colleagues, whose best wishes follow him into his retirement.

Dr. James Brebner, for thirty-seven years registrar of the university, served his *Alma Mater* with great fidelity. Early and late he worked with few holidays. He knew the students better than any other person, and spent a great portion of his time in giving advice to those who met baffling problems in their course or found it hard to decide what course to follow. He was known to thousands who identified the office of registrar with Dr. Brebner. He knew the details of the curricula as no one else and his advice as to consequences of change was invaluable. He takes to his well-earned retirement the gratitude and kindly remembrance of generations of former students and of members of the staff of the university.

Professor W. J. Loudon, also having reached the age limit, carries with him the kindly thoughts of his colleagues and students, as he withdraws from his active duties in the university. He was an excellent teacher, clearly expressing his ideas, and was approachable by all. He is a man of much broader interests than those of his profession both in respect of natural history and the story of the university.

*Complete details as to numbers of teaching staff, students, enrolment in classes and examinations are given in the Registrar's Report, Appendix B.

Dr. Frederick Le Maitre Grasett, emeritus professor of surgery, passed away amid the regrets and affectionate remembrance of his former collegaues and students. A gentleman of the finest quality, he brought to this university the best traditions of Edinburgh when Lister was in his prime, and throughout his long life adorned his profession.

The following resigned their positions:

James Alfred Dale, M.A. (Ox.), professor and director of the department of social service; William Andrew Irwin, M.A., D.B., Ph.D. (Chicago), associate professor of oriental languages; C. Alvin Snell, D.D.S., associate professor of periodontology; William Glenn Trelford, D.D.S., associate professor of periodontology; Mrs. Gladys I. Davis, M.A., assistant professor of English; Norman Tempest Maclaurin, M.B., associate, dental histology, bacteriology and pathology.

In the comparatively few years in which at this university Professor Dale enjoyed full vigour, he inspired the department with his sympathetic and well-disciplined outlook upon social problems, and amid universal regret was constrained to resign by reason of ill-health.

Leave of absence was granted to the following:

William Robert Taylor, M.A., Ph.D., professor of oriental languages, to take the directorship of the American School of Archaeology at Jerusalem; Arthur Francis Chesterfield Stevenson, M.A. (Camb.), assistant professor of mathematics, for postgraduate study; and by reason of ill-health, to the following: Joseph Sutherland Graham, M.B., professor, dental pathology; James Alfred Dale, M.A. (Ox.), professor and director of the department of social science; Frederick William Marlow, M.D., C.M., F.R.C.S. (Eng.), associate professor of obstetrics and gynaecology; Walter Scott Guest, B.A.Sc., assistant professor of electrical engineering.

The following new appointments and promotions were made during the year:

In the Faculty of Arts—Appointments:—Chester Martin, M.A. (Ox.), LL.D. (Man.), professor of history; Frederick Clyde Auld, M.A. (McGill), B.A., B.C.L. (Ox.), associate professor of Roman law and jurisprudence; William Line, B.Sc. (Mt. Allison), M.A., B.Ed. (Alb.) Ph.D. (Lond.), assistant professor of psychology; Arthur Sutherland Pigott Woodhouse, B.A., Ph.D. (Harv.), assistant professor of English; John David Burk, B.A., lecturer in mathematics; Harry Rothwell, B.A. (Manchester), lecturer in mediaeval history; Donald James McDougall, B.A. (Tor. Ox.), lecturer in history; Miss E. F. Deadman, B.A., M.A. (Alb.) S.M. (Chic.), lecturer in psychology; William Malcolm Drummond, B.A. (Queen's), M.A., lecturer in political economy; Joseph Frederick Parkinson, B.Comm. (Lond.), lecturer in political economy; Miss Irene Mary Biss, B.A. (Camb.), M.A. (Bryn Mawr), lecturer in political economy; Frederick Richard Crocombe, M.A. (Camb.), lecturer in accountancy; Miss Mary Craig Needler, M.A., Ph.D. (Chicago), lecturer, ancient history; Edward Killoran Brown, B.A., lecturer in English; F. V. Winnett, M.A., Ph.D., lecturer in oriental languages.

Promotions:—Arthur Leonard Parsons, A.B. (N.Y.), from an associate-professorship to a professorship in mineralogy; Wilhelm Ernst Blatz, B.A., M.B., Ph.D. (Chicago), from an associate-professorship to a professorship in psychology; Charles Norris Cochrane, B.A., M.A. (Ox.), from an associate-professorship to a professorship in ancient history; William Howard Martin, M.A., Ph.D., from an assistant-professorship to an associate-professorship in chemistry; John Wood MacArthur, A.B. (Ober.), M.A. (Wabash), Ph.D. (Chicago), from an assistant-professorship to an associate-professorship in genetics (biology); Thomas

Forsyth McIlwraith, M.A. (Camb.), from an assistant-professorship to an associate-professorship in anthropology; Harold Adams Innis, M.A. (McM.), Ph.D. (Chicago), from an assistant-professorship to an associate-professorship in political economy; Hubert Richmond Kemp, M.A., from an assistant-professorship to an associate-professorship in political economy; Miss Jessie Gertrude Wright, M.A., Ph.D., from a lectureship to an assistant-professorship in botany; George Parkin de T. Glazebrook, B.A. (Tor. Ox.), from a lectureship to an assistant-professorship in history; Miss Gladys I. Wookey, M.A., from a lectureship to an assistant-professorship in English; Mrs. Mossie May Kirkwood, M.A., Ph.D., from a lectureship to an assistant-professorship in English.

In the Faculty of Medicine—Appointments:—William Edward Gallie, M.D., F.R.C.S. (Eng.), professor of surgery and clinical surgery; Herbert Davenport Kay, Ph.D. (Camb.), D.Sc. (Manc.), associate professor of biochemistry; Arthur M. Wynne, M.A. (Qu.), Ph.D., assistant professor of biochemistry; Paul Michael O'Sullivan, M.A., M.B., Ph.D., assistant professor of physiology; William Fletcher McPhedran, B.A., M.B., associate in medicine; Denis R. A. Wharton, B.S.A., Ph.D. (Chic.), lecturer in pathology and bacteriology; Thomas Frederick Nicholson, M.B., B.Sc., lecturer in pathological chemistry; Albert Edward Berry, M.Sc., C.E., Ph.D., lecturer in public health engineering; Earle Willard McHenry M.A., Ph.D., lecturer in physiological hygiene.

Promotions:—William Herbert Lowry, M.D., C.M., from an assistant-professorship to a professorship in ophthalmology, with headship of the department; Henry Seaton Hutchison, M.B., from an associateship to an assistant-professorship in medicine; Norman Strachan Shenstone, B.A., M.D. (Col.), from an associateship to an assistant-professorship in surgery; Neil E. McKinnon, M.B., from a lectureship to an assistant-professorship in epidemiology and biometrics.

In the Faculty of Applied Science—Appointments:—Cecil G. Heard, B.A., Sc., lecturer in mechanical engineering.

Promotions:—Edward Gowan Russell Ardagh, B.A.Sc., from an associate-professorship to a professorship in applied chemistry; Ross Taylor, B.A.Sc., from an assistant-professorship to an associate-professorship in mechanical engineering; William Gourlay McIntosh, B.A.Sc., from a lectureship to an assistant-professorship in mechanical engineering; Ernest Albert Smith, M.A. (McM.), from a lectureship to an assistant-professorship in chemical engineering; George Hammond Harlow, B.A.Sc., from an instructorship to a lectureship in thermodynamics; Kenneth H. Braithwaite, B.A. (West.), B.A.Sc., from an instructorship to a lectureship in chemical engineering.

In the Faculty of Household Science—Appointments:—Miss Kathleen Emma Bennett, B.A., M.A. (Col.)., lecturer.

In the Ontario College of Education—Appointments:—William Gordon Bennett, B.A., B.Comm. (Qu.), B.Paed. (Tor.), A.M. (Chic.), associate professor, commercial subjects; Miss Winifred Glen Barnstead, B.A. (Dal.), director, library school.

Promotions:—George Mallory Jones, B.A., from an associate-professorship to a professorship of methods in English and history; Frederick Ethbert Coombs, M.A., from an associate-professorship to a professorship of methods in elementary education.

In the Faculty of Dentistry—Appointments:—Frank Melville Lott, D.D.S., associate in dentistry; William Magner, M.D., D.P.H. (Ireland), lecturer in pathology.

Promotions —William George Switzer, D.D.S., from an associateship to an associate-professorship in dentistry. Hugh Alexander Hoskin, D.D.S., from an associateship to an assistant-professorship in dentistry.

The academic year which closed on June 30, 1930, presented the Governors,

Senate and faculty councils of the university with even more difficult problems than usual, a number of which were satisfactorily dealt with, and others only partially solved. It is an old story, repeated almost every year since the war, that the steady increase of numbers has been bringing urgent demands for more accommodation. Also the gradual and often almost imperceptible changes in educational outlook compel us to review frequently both the arrangement and content of our curricula and to consider their modification or enlargement. Last year the number of students enrolled in colleges and faculties largely exceeded that in the preceding year, being 6,759 instead of 6,051, and the increase, spread over most of the faculties, heightened the pressure on teaching staff and accommodation which has been felt, in many departments seriously felt, for several years. There is no such ample equipment in the university as to allow us to meet with freedom the emerging problems even of undergraduate, far less of postgraduate, instruction. The questions, Where is class-room space to be secured? Where can a new department if created be housed? How can the use of books be dealt with in the present library? How can we meet the needs of women students for physical training and social life? are depressingly familiar.

Cognate questions will be asked of those who come after us. It would be ominous indeed should the day ever dawn when the Governors and Senate and councils would be undisturbed by similar demands. But each generation, while thinking of the future, works for its own good, and is to be judged by its ability to secure that those under its care shall not miss the really important preparation and privileges which they should enjoy. Our successors will have no right to complain unless we handicap them by the way we build or by not building when we should.

During the past academic year notable progress has been made in providing for better accommodation, the government having generously met the requests of the Governors in respect of a building for the department of botany to be erected on Queen's Park, and an enlargement of the building for the department of mining engineering. Also the intimation of the Government to the Trustees of the Royal Ontario Museum that a commodious and beautiful extension toward Queen's Park crescent had been authorised, has been received by the Governors of the University with great satisfaction, inasmuch as the interests of the University and the museums are so intimately related to one another.

From the legacy of the late Mr. E. C. Whitney, money has been appropriated to erect on St. George Street three out of the four projected units of women's residences for University College. This will meet a long felt need, will contribute to the welfare of University College and will beautify the grounds of the University. Owing to the removal of houses for this purpose, the headquarters of the department of health for women and rooms for postgraduate activities have been temporarily transferred to the building on the corner of Hoskin Avenue and Devonshire Place, formerly occupied by the Kappa Alpha fraternity. But the long outstanding need of quarters for the physical and social well-being of the women of the university is hardly relieved by these changes.

The enlargement of the kitchen and serving quarters of Hart House initiated at the end of the academic year will make it possible for those in charge of the great hall to cope, as never before, with the increasing demand for meals on the part of its membership.

The formal opening of the Banting Institute, which took place after the close of the academic year, marked an epoch in the life of the faculty of medicine. Though large it has been at once fully occupied, and in its departments of pathology, clinical medicine, surgery, and medical research some of the most important research work of the university is being conducted.

By the purchase of four new houses on St. George Street further space has been found for psychology, for history and economics, and for a temporary residence for graduate women.

But notwithstanding all this building activity and expansion, the pressure for room is in some respects greater than ever. A reference to the Librarian's report will at once indicate the condition of acute congestion which exists in the library and which must somehow be relieved as quickly as possible. This is so vital a part of the life of the university that if the constriction continues long undergraduate study will suffer seriously, and postgraduate growth in some departments will almost come to a standstill.

Chemistry in arts has had slight temporary relief by the removal of some classes to the laboratories of the former McMaster building. But this does not solve their greatest difficulties. Chemical engineering is also warning us that the increase of numbers has made it extraordinarily hard for them to give the students what they have a right to expect.

Political science, including commerce, with its rapid growth, cannot find sufficient class-room accommodation even by the inconvenient utilising of the large rooms in various buildings placed as they are at some distance from one another.

Astronomy also, geology and mineralogy and physics constantly report that they need more space. And one of the most urgent calls comes from the Ontario College of Education.

To have these demands reiterated at short intervals without my being able to assure those interested that the Governors are in a position to meet them at once is an unpleasant duty, though I must also say that I find the heads of the departments willing to do their utmost to make the situation tolerable. Behind this pressure with its inconvenience is the great and exhilarating fact that it is the genuine development of the University in its highest aspects, not merely in numbers, which gives rise to most of our problems of this nature.

The most important event in the faculty of arts during the year, and indeed for a good many years, was the decision of the faculty, confirmed by Senate and Governors, to discontinue instruction in the pass subjects of the first year, beginning with the session 1931-32. This decision was arrived at after long and thorough discussion. As far back as 1912 the principle was approved by our faculty of arts, but chiefly because of the unwillingness of the other universities of the province to accept the proposal it was not put into effect. Since those days the conditions of higher education have been changing. High schools and collegiate institutes have been equipped more completely in the rapidly growing towns and cities, and their numbers have caused a rising attendance at this university. The repeated demands for more buildings and staff heightened the argument in favour of the policy, as little was to be said for devoting space and the time of teachers to students who can easily secure education of a similar standard in all the leading cities and towns of the province. The work of the first year pass course in arts is distinctly of school grade. A great university with its urgent needs should not at this time in the cultural development of this province devote any of its energy to reduplicating that quality of work. The other reasons for reinforcing the proposal have often been given, but I shall enlarge chiefly upon attendance. The arguments which were used against the change need not be set forth. Suffice it to say that they were carefully and long considered in committees and in full meetings of the faculty council.

The figures of attendance in the first year in the past few years were as follows:

	1923-24	1924-25	1925-26	1926-27	1927-28
Pass	222	384	342	365	414
Honour	341	330	391	445	416
	563	714	733	810	830

For the past two years the figures of those in the colleges from Toronto and from outside Toronto were as follows:

1928-1929

COLLEGE	PASS		HONOUR		TOTALS				
	Toronto	Outside Toronto	Toronto	Outside Toronto	Pass	Honour	Toronto	Outside Toronto	Grand Total
University....	141	77	137	103	218	240	278	180	458
Victoria.....	27	28	52	85	55	137	79	113	192
Trinity.....	32	21	21	20	53	41	53	41	94
St. Michael's..	38	42	13	14	80	27	51	56	107
Totals.....	238	168	223	222	406	445	461	390	851

1929-1930

University....	174	84	156	130	258	286	330	214	544
Victoria.....	41	42	72	144	83	216	113	186	299
Trinity.....	28	36	16	28	64	44	44	64	108
St. Michael's..	45	41	13	17	86	30	58	58	116
Totals.....	288	203	257	319	491	576	545	522	1,067

It is to be observed that during the past seven years the number of students in the pass course of the first year in arts has increased from 222 to 491, and the number in the honour courses from 341 to 576. If this were to continue the number of pass students would soon offer a very serious problem. Further, during the past two years the pass students who came from Toronto have increased by 50, and they greatly outnumber those of the same grade who come from without the city. Also, the number of honour students from outside Toronto last year surpassed those from the city, and outnumbered the pass students from outside the city by 116. All this shows that the schools outside Toronto send relatively more students of higher standard than those of the city, and that they can easily rise to the new requirement. Indeed the university in its pass course has been doing more work for the city, which it could very well do for itself, than it has been doing for the province at large.

Already every year larger numbers of students have been entering with honour matriculation at the second year. In the last session 491 entered the first year of the pass course, and 120 entered direct from school the second year of the pass course. Of those entering the first year, 44 had credits in 4 honour matriculation subjects, 65 in 3, and 46 in 2, so that quite an appreciable number of them would find the work of the first year rather easier than was wholesome for their intellectual health.

Of the 203 from outside Toronto who entered the pass course last year, 117 came from schools in which they could prepare for the higher standard, many of them with records quite as good as those in Toronto, and only 12 came from continuation schools, and 17 from private schools. The rest were drawn from outside the province. These numbers proved that if the proposed policy was educationally right no real hardship would be done by carrying it into effect.

To abolish the lower standard of entrance to arts will be an advantage to the discipline and quality of the schools of the province. It will also prevent many students from coming to the university on a meagre equipment by reason of which hitherto at the end of the year many have faced failure, and others whose chief object in coming would be the enjoyment of the social or athletic life of the university. The pass degree will after next year be obtainable in three years, but it will be of the same standard as before, probably indeed it may be improved.

The gap in the quality between the pass and the honour degrees has been widening greatly in recent years. More well prepared scholars have been coming from the schools. These well prepared scholars also when they graduate find new openings. The growth of the sciences and commerce has demanded a more

highly specialised type of graduate for the conduct of research in laboratories, and for high positions in commercial or insurance offices. As a result fewer relatively than formerly of our honour graduates have of late gone into the profession of teaching in the schools. Perhaps our honour courses had become too specialised for the average teacher even in the higher ranks. It has therefore been decided to introduce a new course between the honour and the pass, to be called "the general course," a term also historically agreeable to at least one of the federated universities. This course will be based upon the pass work of the first two years. Such students as reach a good standard—say 60%—at the end of the second year will be allowed to enter the general course in the third year, and to take a fourth year before graduation. In the last two years the student, instead of being bound to present five subjects of the pass course, will be allowed to choose fewer but cognate subjects, and thus, while getting an excellent general education, will be able by a measure of specialisation to become versed in some one or more departments of study. It is hoped that if a student graduates in this course with distinction the Provincial Department of Education will recognise such grade of attainment as qualifying for "specialist standing", and the M.A. degree might be attainable after one more year's study.

The other universities of the province were consulted with regard to their attitude towards this great change before it was announced. While they recognise that the University of Toronto may be perfectly justified in carrying it into effect, they believe that their local conditions prevent them from adopting the proposal at present.

These changes involve certain modifications in existing honour courses which will be considered by the council during the forthcoming session.

None of the modifications in the curricula of the other faculties call for report. It is obvious once more, as our previous experience has shown, that when standards of entrance to any faculty are raised the schools and pupils respond, and soon the number of those seeking admission is greater than ever. This we see to-day in the faculties of medicine and applied science.

A good many years ago university education the world over entered into a new age. For several centuries it was static; now change is manifold and rapid. This, of course, means that the university as one of the greatest organs of civilisation is adapting itself to the social conditions of the modern world. If the institution often seems to some too slow in its movement, it is only necessary to compare its present character with what it was a century ago; and at the same time to remind ourselves that the university will overload itself if it at once on demand makes itself the medium for providing for every semi-professional calling which is not based upon such a measure of scientific or humanistic equipment as differentiates university education from what, from want of a better word, may be called the technical. There is an important place for extension work (last year our enrolment was 419 in courses and 3,426 at provincial centres), but that, too, we seek to confine to instruction which is not likely to be done in technical schools. There are certain subjects in history, political science, higher mathematics, the pure and applied sciences, ancillary to or central in the training for some vocations which can best be given by teachers in the university. In so far as this instruction does not divert teachers from their main functions in the departments to which they have devoted themselves, the university endeavours to make provision for it.

It can hardly be repeated too often that one of the two purposes of a university is to train a student, usually by a long process, to understand the principles of the mental, social and natural sciences or of history and literature, on the application of which the callings of life respectively depend. The practical application of these principles has to be learned for the most part in hospitals, engineering undertakings, lawyers' offices, commercial and manufacturing houses. Consequently the needs arising out of the social development of the country in

which the university is situated are kept in view in making modifications of established courses. The tradition of higher education in this university is mainly English, Scottish and Irish, a tradition that is being maintained by constant additions to the staff; but a good deal of influence has come from the United States, and continental Europe also has made a contribution. As we look to the future the function of this and other Canadian universities will be to assimilate these traditions and influences, and, by making so much of them as we need our own, to create institutions of higher education which will best serve the peculiar and unique life which we are working out for ourselves in our homeland.

During the session the following special lectures were delivered:

The Alexander lectures by Professor H. W. Garrod, emeritus professor of poetry, University of Oxford, on "Education in Poetry," "Poetry as Truth," "Poetry as Delight," and "Poetry and Criticism"; three lectures by Dr. A. Bethe, professor of physiology, University of Frankfurt, on "The Permeability of the Surfaces of marine Animals," "Differences in the physiological Antagonisms of Ions," and "The Analysis of a muscle Contraction into its constituent Parts"; two lectures by Professor J. Stanley Gardiner, F.R.S., department of zoology and comparative anatomy, University of Cambridge, on "The Formation of Coral Reefs"; three lectures by Professor Corrado Gini, director-general of statistics in Italy, professor of political economy and statistics, University of Rome, director of statistics, University of Padua, on "Present and Future Progress of Statistics," "On the Future of Populations," and "The Policy of the Italian Government in Matters relating to Population"; a lecture by Professor F. Schoenemann, University of Berlin, on "The Americanisation of Europe"; two lectures by Professor Vittoria D. Macchioro, professor of archaeology, University of Naples, and a curator of the Museum of Naples, on "Orphism," and "The Orphic Villa of the Mysteries"; two lectures to the students in law by Professor Ernest Mahaim, University of Liége; two lectures by Professor Charles J. Chamberlain, University of Chicago, on "Alternation of Generations," and "Determination of Sex"; two lectures by Professor E. Allison Peers, Gilmour professor of Spanish, University of Liverpool, on "The Nature of Christian Mysticism," and "The Mystics of Spain"; a lecture by Dr. J. Arthur Thomson, regius professor of natural history, University of Aberdeen, on "The Wonder of the World"; three lectures by Professor Jean Cabannes, University of Montpellier, on "Molecular Scattering of Light by Gases," "Experimental Laws of Raman Effect," and "Degradation of Light Frequency by Molecular Scattering"; two lectures by Professor S. Goudsmit, University of Michigan, on "Spectroscopy," and one on "Atoms and Atomic Models"; the Balfour lecture in medicine by Dr. John M. C. Finney, professor of clinical surgery, Johns Hopkins University, on "The Making of a Surgeon."

The department of physics arranged a symposium on "Theoretical Physics," and a series of lectures was given by the following physicists: Professor W. F. G. Swann, director, the Bartol Research Foundation, Franklin Institute; Professor J. H. Van Vleck, University of Wisconsin; Professor Otto Oldenberg, University of Göttingen; Professor Svein Rosseland, University of Oslo; Dr. E. S. Akeley, recent student of Professor Einstein; and Dr. A. E. Ruark, the Mellon Institute, Pittsburg.

The university organist, Dr. F. A. Mouré, gave ten fortnightly recitals on the organ in Convocation Hall to large audiences.

Three special convocations were held for the purpose of conferring the honorary degree of doctor of laws upon Principal W. L. Grant, on the occasion of the celebration of the centenary of Upper Canada College, upon the Right Honourable J. Ramsay MacDonald, Prime Minister of Great Britain and Northern Ireland, and upon General the Right Honourable Jan Christian Smuts.

Every year recognition is made in one way or another of members of the staff of the university. On this occasion I mention the high honour done to Professor E. J. Urwick, who was invited by the London Charity Organisation Society to deliver the Sir Charles Loch memorial lecture in Old Hall, Lincoln's Inn, London, on January 9; also to Professor J. G. FitzGerald who was appointed on the health committee of the League of Nations as public health expert assessor and is chairman of the committee on education in hygiene and preventive medicine. This will involve a conference with the directors of schools of hygiene of the world.

A noteworthy event in the year was the visit in the month of April of sixteen headmasters of British public schools to the leading universities of the Dominion, with the object of enabling them by personal observation to give more definite advice to the boys of their schools who may wish to enter upon professional or business life in this Dominion.

During the past year the university has received the following benefactions, totalling $193,368.49:

From the E. C. Whitney bequest, $62,896.64; D. A. Dunlap bequest, $50,000; D. A. Dunlap memorial scholarship, $1,000; Eaton endowment, $25,000; Laura Spelman Rockefeller memorial for child welfare, and premium, $19,000 and $103.92; Rockefeller Foundation, for paediatrics, $8,000, and premium $30; donations for the faculty of dentistry: J. P. Bickell, Esq., $3,000; Carnegie Corporation, for dental library, $2,000, and premium $7.50; Canadian Dental Research Foundation fund, $1,000; Ash Temple fellowship, $250; J. B. Willmott scholarship, $250; Ontario Dental Association fellowship, $250; Graduate fellowships: Imperial Oil Company, $500; estate of the late Sir Edward Kemp, $500; Colonel R. W. Leonard, $500; Colonel H. Cockshutt, $500; the Robert Simpson Company, $500; Canadian Pacific Railway, $1,500; George M. Wrong scholarship, $3,138.58; Flavelle-Peacock lectureship: Sir Joseph Flavelle, $1,250; E. R. Peacock, Esq., $1,250; Glen Mawr Old Girls' Association scholarship, $2,300; Maritime Provinces Association scholarship, $1,300; Political Science fellowship, $1,000; Library Psychology fund, $914.68; Rabbi Isserman prize, $703.87; St. Margaret's College Alumnae scholarship, $650; Social Service Council of Ontario scholarship, $500; Robert Bruce scholarship, $463.91; Sir Edmund Walker scholarship, $450; University College Alumnae Matriculation scholarship, $400; Robert Simpson Company scholarship, $300; John McCrae scholarship, $275; Maurice Cody scholarship: for University College, $125; Modern History, $100; Memorial prize, University of Toronto Schools, $25; University Schools scholarships: Sir John Eaton memorial, $120; Hon. Newton Rowell, K.C., for Langford Rowell scholarship, $100; Boiler Inspection and Insurance Company scholarship, in mechanical engineering, $150; Rev. Dr. H. J. Cody scholarship, $125; Toronto Brick Company prizes, in architecture, $125; Ontario Association of Architects scholarship, $100; Delta Phi Epsilon scholarship, $100; Darling and Pearson prize, in architecture, $100; J. J. Gibson scholarship, $100; A. H. Jarvis bursaries, $100; McCaul Scholarship in Classics: Principal M. Hutton, $25; G. H. Fraser, Esq., $25; A. M. Stewart, Esq., $25; Mathematics scholarship, Professors Beatty and Pounder, $50.00; Hon. Charles McCrea for Dent McCrea scholarship, $50; Dr. R. A. Reeve prize, $50; British Association Advancement Science fund, for prize books, $33.94; Professor F. Tracy prize, in ethics, $30; Squair French Library fund, $15.45; University College Alumnae prize, in English, $10.

I have much pleasure in reporting that Lady Kemp has undertaken to continue a postgraduate fellowship of $500 in memory of the late Sir Edward Kemp, whose death is deeply regretted by his fellow members of the Board; also that Sir Joseph Flavelle has arranged for a postgraduate fellowship of the same amount for the following five years. Through the Honourable Vincent Massey, a benefactor whom this university always holds in warm remembrance, the

Massey Foundation has offered a postgraduate scholarship to be held at the University of Toronto by a student from India, to be selected by a committee in India, of which the Viceroy has consented to act as chairman. This scholarship will be of great significance. Professor H. J. Davis has presented to the governors a sum of $10,000 to establish the Gertrud Davis Exchange fellowship. The income from the sum will be available annually to enable a graduate of University College to pursue studies in a German university. By reciprocal arrangement, the International Institute of Education in Berlin has provided a similar scholarship to enable a German student to pursue studies in this university. A gift of colorprints was received from the Metropolitan Museum of New York through the Carnegie Corporation.

All of which is respectfully submitted.

R. A. FALCONER,
President.

November 13, 1930.

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science and Engineering.
(4) Report of the Dean of the Ontario College of Education.
(5) Report of the Secretary of the Faculty of Household Science.
(6) Report of the Dean of the Faculty of Forestry.
(7) Report of the Dean of the Faculty of Music.
(8) Report of the Dean of the School of Graduate Studies.
(9) Report of the Dean of the Faculty of Dentistry.
(10) Report of the Director of the School of Hygiene.
(11) Report of the Librarian.
(12) Report on Research.
(13) Publications.
(14) Report of the Department of University Extension and Publicity.
(15) Report of the Director of the Department of Social Service.
(16) Report of the Director of the Department of Public Health Nursing.
(17) Report of the Director of the Department of Military Studies.
(18) Report of Health Services.
(19) Report of the Warden of Hart House.
(20) Report of the Director of the Connaught Laboratories.
(21) Statement regarding the Museum of Archaeology.
(22) Statement regarding the Museum of Biology.
(23) Statement regarding the Museum of Geology.
(24) Statement regarding the Museum of Mineralogy.
(25) Statement regarding the Museum of Palaeontology.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE

(*Professor M. W. Wallace, M.A., Ph.D.*)

I have the honour to submit to you the following report on the activities of University College during the session 1929-1930:

During the past year the following gifts have been made to the college:

Professor H. J. Davis has presented to the governors the sum of $10,000 to establish the Gertrud Davis Exchange fellowship, in memory of his wife. The income from this sum will be available annually to enable a graduate of University College to pursue his studies for one year or more in a German university. By arrangement with the International Institute of Education in Berlin, a German student will spend a like period in the University of Toronto. Similar exchange fellowships have been established during recent years by the Royal Institute of International Affairs in London and similar bodies elsewhere. They have been open to graduates of English, French, German and American universities, and

the experiment has been regarded by many university authorities as highly successful. It is a matter for congratulation that our own college is now to share in the benefits that result from an international exchange of students. Mr. W. P. Apps of the graduating class has been appointed the first exchange fellow.

The Alumnae Association have established an annual scholarship of the value of $100. This scholarship will be awarded during the present year to a student who has completed the first year of the pass course, and who proposes next year to enter an honours course.

Two prizes have been established in the college by the Alumnae of St. Margaret's College. The first (the income from a capital sum of $600) is for excellence in public speaking. The second prize of $15 is in memory of Florence M. Neelands, a graduate of University College in 1896, and is to bear her name. It will be awarded for excellence in a French essay, and will be open for competition by students of the third year.

Messrs. Mathers and Haldenby have completed plans for three women's residences to furnish accommodation for about 160 students. Contracts for the erection of these buildings have been let, and the houses which occupied the ground between the Women's Union and Hoskin Avenue have already been demolished. The new residences will be built of red brick in the Georgian style, and their completion will mark an epoch in the history of women students in the college. A magnificent gift of $25,000, a contribution toward the furnishing of the residences, has been made by the Alumnae Association. No statement could be more eloquent than this both with regard to the supreme need of the new buildings and as a testimony to the devotion of our women graduates.

The need of residential accommodation for our men students is very pressing, and the success of the one residence which we now possess only emphasises the desirability of grappling with the problem in a larger way.

Since my last report several members of the college staff have resigned their posts. Mrs. Kirkwood, who had done most efficient service as dean of women for a number of years, resigned in October last in order to give her time exclusively to her work in the department of English. Mrs. Kirkwood had devoted herself unsparingly and with high success to the difficult duties of her position, and it has been a difficult matter to find a worthy successor. We have been fortunate, however, in securing the temporary services of Miss Dorothy Kilpatrick who will also remain with us during the coming session. Dr. Gertrude Wright, who has for several years carried the heavy burden of her work as head of Queen's Hall and assistant professor of botany, has also felt that she must give the whole of her time to her work of teaching and research. Professor W. A. Irwin, of the department of oriental languages, has resigned to accept a professorship in the University of Chicago. Professor Irwin is a distinguished scholar, and his resignation leaves the college poorer in scholarship and teaching power. No vacancy is harder to fill to-day than that caused by the resignation of a great scholar in orientals, and it is with the deepest regret that Professor Irwin's colleagues have learned of his decision to leave Toronto. Miss Gladys Wookey has resigned her position as assistant professor of English literature, and Mrs. M. S. Hunter as lecturer in French.

The Alexander lectures were delivered in March by Professor H. W. Garrod, formerly professor of poetry in the University of Oxford. Professor Garrod gave four lectures on the subject, *The Study of Poetry*, and on each occasion Hart House theatre was filled almost to its capacity. Professor Irving Babbit of Harvard University has accepted the appointment as lecturer on the same foundation for next year.

A course of ten public lectures by members of the college staff was given during the course of the session in the west hall.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

(Dr. A. Primrose)

All faculties in the university regret the retirement of Dr. James Brebner, the university registrar. During forty years of faithful and efficient service he came into intimate contact with students and staff alike. It is of interest to recall the fact that for a brief period after the reorganisation of the faculty of medicine (1893-94) he functioned as secretary of the faculty. As university registrar, his multifarious and onerous duties were performed with an exactitude and thoroughness which commanded the respect and admiration of all with whom he was associated in academic circles. We shall long miss his ministrations among us.

In the death of Dr. F. LeM. Grasett, which occurred on February 16, 1930, we lose an honoured friend and colleague. He was for many years on the staff of Trinity Medical College and when that school was amalgamated with us in 1903 he became professor of surgery and clinical surgery in our faculty, a position which he continued to fill until 1909, when he retired from active duty. The governors of the university gave him the standing of an emeritus professor, which he retained until his death. Former students and colleagues mourn the loss of one for whom they had the greatest affection and esteem.

From among our graduates we record with deep regret the death of Dr. E. E. King, surgeon to St. Michael's Hospital and for many years a member of the College of Physicians and Surgeons of Ontario, and of Dr. Harley Smith, at one time demonstrator of anatomy in the university. At Rochester, Minnesota, Dr. C. S. McVicar, physician to the Mayo Clinic, died with tragic suddenness. Dr. McVicar served on the University Hospital staff overseas during the Great War; at one time he was demonstrator in the department of medicine of this faculty.

The chair of anatomy was rendered vacant by the retirement of Professor J. Playfair McMurrich. He had held the appointment with great distinction since 1907. He was also dean of the Graduate School in the university and in this latter position has been succeeded by Professor J. C. McLennan.

Dr. G. S. Young retired from the position of assistant professor of medicine and attending physician in charge of the medical out-patient department of the Toronto General Hospital. Dr. M. V. H. Cameron, with the rank of assistant professor, was granted leave of absence for a year; his resignation from the staff in surgery will become effective at the end of the academic year, 1930-31. Dr. G. Hunter, assistant professor of pathological chemistry, has retired. We also note the retirement of Dr. Norman Gwyn from the department of medicine, and of Dr. H. Borsook from that of biochemistry. Dr. H. D. Kay, Ph.D. (Camb.), D.Sc. (Manch.), has been appointed associate professor of biochemistry.

Dr. J. M. MacCallum has retired from the chair of ophthalmology, which he has occupied, as successor to the late Dr. A. R. Reeve, since 1914. He not only performed his professorial duties with marked ability, but in addition he represented the University of Toronto on the Dominion Medical Council and on the College of Physicians and Surgeons of Ontario for many years. His activities on these two important bodies have been of great value in safeguarding the interests of this university and in contributing to the progress of medicine licensure. He has been succeeded in the chair of ophthalmology by Dr. W. H. Lowry.

The Donald C. Balfour lecture was delivered on April 5 (Lister Day) in Convocation Hall, by Dr. J. M. T. Finney, surgeon to Johns Hopkins Hospital, Baltimore. Many undergraduates (to whom the lecture is primarily addressed) and practitioners were present. The ideals to be attained in the training of a surgeon constituted the subject of a most interesting and instructive address.

Following the lecture, the usual Lister Day luncheon at the York Club was attended by many lay and professional representatives of the university and hospitals.

A short and intensive course of postgraduate instruction in internal medicine was conducted for three weeks in June. This course consisted of lectures, clinics, and demonstrations on five days of each week from 9 a.m. to 1 p.m. The afternoons were spent in the wards and clinical laboratories. The members of the class subsequently expressed, through their representative, Dr. Nunn, of Battleford, Sask., their keen appreciation of the instruction which they found of the greatest value.

Dr. W. E. Gallie was awarded the Charles Mickle fellowship. This is an award made annually to that member of the medical profession who is considered to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science. Dr. J. G. FitzGerald was appointed a member of the health committee of the League of Nations and one of the four public health expert assessors for that committee at Geneva. Dr. D. King Smith was elected president of the Academy of Medicine, Toronto, and the dean of the faculty president of the American Surgical Association. Dr. W. E. Gallie was elected president of the American Orthopaedic Association. The dean was appointed representative of the university on the Medical Council of Canada, and the secretary, Dr. Ryerson, representative on the College of Physicians and Surgeons of Ontario.

In May, 1930, two portraits were presented by colleagues and former students of the recipients. One of Professor McMurrich was painted by Mr. Kenneth Forbes, the other of Dean Primrose by Mr. Curtis Williamson. Both were unveiled after a dinner in the Great Hall of Hart House.

The new laboratories on College Street, opposite the General Hospital, mentioned in last year's report, are nearing completion and will be officially opened in September next. It has been determined to call this building "The Banting Institute," as a memorial to the discoverer of insulin.

Extensive additions have been made to the Toronto General Hospital. The accommodation for public ward patients has been greatly increased by extending the pavilions of the main building. A new private ward pavilion has been erected on University Avenue to provide for 350 patients. This building is one of the most complete in existence and is unique in many respects. It is replete with modern equipment and devices for the care of the sick. The entire hospital now contains 1,200 beds. Projects are on foot for housing adequately the radiological department and a radium institute is about to be organised.

The Royal College of Surgeons of England conducted the primary examination for the fellowship in the University of Toronto in August, 1929. This is the first time such an examination has been held out of England.

In November, 1929, the Royal College of Physicians and Surgeons of Canada was organised. Dr. J. C. Meakins of McGill University was elected president, Dr. Duncan Graham vice-president of the medical division, and Dr. F. N. G. Starr vice-president of the surgical division.

Medicine: No changes have been made in the organisation of the department of medicine, including the sub-department of paediatrics. We regret the retirement in June, 1929, of Dr. George S. Young, assistant professor of medicine and attending physician in charge of the medical out-patient department of the Toronto General Hospital. Dr. H. S. Hutchison has been appointed successor to Dr. Young, and Dr. W. F. McPhedran has been appointed to the position formerly held by Dr. Hutchison.

Surgery: Dr. M. H. V. Cameron, one of the senior members of the teaching staff at St. Michael's Hospital, retired from the hospital staff and tendered his resignation to the university. The state of his health rendered it imperative. He has been a first-class clinician for more than twenty years and the department

hopes that the release from heavy hospital and university duty will quickly restore him to health.

During this year many earnest discussions have taken place among the staff in regard to methods of teaching. As a result a three-year programme has been entered upon which it is hoped will result in the broader and more effective education of our students. During the past year our attention was focused on the reorganisation of teaching in the fourth year. By special arrangement with the professor of pathology, the pathology of inflammation was taught during October, November and December, in order that the students might understand some of the underlying principles of disease before seeing the patients on the wards. During this period the surgical teaching was limited to surgical anatomy and to the physical examination of the normal in patients. In this relation an interesting and highly successful experiment was tried in which clinicians in turn gave a clinical lecture to the whole year on some special region of the body and then handed to the students and all the other clinicians a complete mimeographed copy of the lecture. The bedside clinics then followed the outline of the lecture so that the students all received uniform and very complete instruction in the subject. The mimeographed lectures were prepared for fyling in book form and when the course was completed each student had on fyle a book on applied anatomy and physical examination quite unlike anything in print. The result of this experiment was highly satisfactory as the students demonstrated in their examinations an improved ability to examine a patient. So satisfactory was the result that the plan will be continued next year and extended in modified form to the teaching in the fifth year.

The only change in fifth year teaching occurred in the latter part of the session when, after consultation with the professor of pathology, we returned to the old plan of having the clinicians teach gross surgical pathology in the museum. Next year this plan will be operated throughout the whole session and will be greatly aided by the architectural arrangements of the new building. The revival of interest in this well-tried method of teaching and the forming of closer relations between the departments of surgery and pathology is highly satisfactory to this department and should prove useful to the students.

The staff meetings have continued bi-weekly throughout the year at the various hospitals and have always proved interesting and stimulating. The head of the department on several occasions made visits to the staff meetings of the university hospitals other than the General and found there the same keen spirit to which he has become accustomed at his own hospital, and some new ideas well worth adopting. These staff meetings are undoubtedly an important means of arousing enthusiasm in hospital staffs.

Obstetrics and Gynaecology: During the present year the teaching has been carried out in accordance with the curriculum with fairly satisfactory results, although the calibre of the graduating class was slightly below that of the two preceding years.

At the beginning of the fall term, Dr. R. C. Montgomery, a part-time junior demonstrator, resigned to take up insurance work with the Manufacturers Life, and Dr. Kent Manning was appointed to the vacancy and is doing satisfactory work at the Western Hospital.

The continued illness of Dr. F. W. Marlow has prevented him from taking part in any work of the year.

During the illness of the head of the department in the first half of the year, the administration of the department was most efficiently carried out by Dr. W. A. Scott.

The special departments of ophthalmology and oto-laryngology: The lectures were made as practical as possible and the lantern was used to illustrate the description of the diseases of the eye the graduate is likely to meet.

The staff of the department of oto-laryngology has carried out its

instructional programme for the students much in the same manner as in former years.

The instruction has been given with the object of familiarising the student with the common ailments of general practice. There is no postgraduate teaching in oto-laryngology in the University of Toronto. The only facilities we have for graduate instruction are such as may be obtained by attending the work of an undergraduate class.

The work in the department has increased very considerably and in order to keep it up to its usual high standard, additions to the staff will be required.

Therapeutics: The work in the department of therapeutics has run very smoothly during the session now terminating. The attendance of the students has been excellent and they seem to realise more and more that after all the main object of the course in medicine is treatment.

Psychiatry: The amount of time allotted to the several courses has been the same as in preceding years, with slight rearrangements in order to utilise this time to better advantage.

During the second half of the 4th year the introductory course in psychiatry stressed particularly the psychiatric problems of general medical practice; further, the relationships between psychiatry and the fields of education, industry, criminology and sociology in general. In other words, a more definite effort was made to humanise the subject in its relations to various life situations with a view to bringing students to think sociologically as well as medically with regard to abnormal mental states.

During the first half of the 5th year a systematic presentation was offered of the commoner symptoms of mental disabilities, mild and severe, with the endeavour to derive them from normal situations, and particularly to indicate the significance of deviations in early life.

During the 6th year detailed case demonstrations were presented in three groups of ten weeks each.

During all three years increased use was made of clinical material to illustrate conditions under discussion.

The 5th year elective group was this year given greater opportunity to make individual studies. During the first half of the year the group was subdivided into three, the subdivisions meeting simultaneously under different instructors for more intensive case work. During the second half-year the group met in a body with several instructors who presented particularly extra-mural psychiatric problems as in previous years.

Radiology: The work of this department has been continued with no material change from previous years in so far as the academic aspect is concerned. A number of events of importance to radiology in general and in which various members of the staff were interested have occurred during the year. One of the most important of these was the meeting in Toronto of the 15th annual meeting of the Radiological Society of North America, attended by some six hundred radiologists from the United States and Canada. During the term a number of distinguished foreign radiologists were received and these commented favourably on the quality of the work locally.

Biochemistry: The department has suffered an irreparable loss since the last report was submitted, from the resignation of Professor Andrew Hunter. On the other hand, it has been very fortunate in the appointment to an associate-professorship of Dr. H. D. Kay, formerly Beit fellow on the staff of the medical unit of London Hospital. Professor Kay has entered enthusiastically into the life of the department and both teaching and research have benefited from his energetic co-operation.

The department of zymology, which formerly existed as a separate research department, though always in close association with this department, has now been incorporated into the department of biochemistry, but has continued un-

interruptedly its programme of research and teaching under the able direction of Professor Wynne. On the resignation of Professor Speakman from the directorship of the department of zymology, Dr. Wynne was appointed an assistant professor of biochemistry. He is a most valuable addition to the staff, and during the past session shared with Professor Kay the lectures of the advanced course.

Pharmacy and Pharmacology: Teaching in this department has been more satisfactory than for many years past in spite of the large size of the fourth year in medicine. The work of the department has greatly increased during the past two or three years owing to the courses given to students in pharmacy and in dentistry.

Pathology and Bacteriology: With the close of the present session, the department of pathology and bacteriology concluded its occupancy of the pathological building, which was erected in 1913. The department has of late quite outgrown the facilities which this building offered, and it will be of great advantage to enter the more adequate arrangements available in the new Banting Institute. The amount of work which the department is carrying on continues to increase, so that the arrangements necessary in the physical appointments are taxed to their utmost, and the demands upon the staff are very great.

The manner in which the teaching of pathology and bacteriology is carried on during the last three years of the medical course is similar to that of the past few sessions. Improvements in the presentation of the practical work in both pathology and bacteriology have been instituted, so that the studies not only elucidate the principles underlying each subject, but also bear a direct relation to their clinical application. In the forthcoming year it is hoped that a closer co-ordination with the department of surgery will be obtained in the presentation of applied pathology to the 5th year classes. It has always been felt, as we have indicated in previous reports, that the teaching of gross pathology has not reached the ideal we have set for it, and greater efforts will be made to improve this shortcoming. The facilities which are being organised in the new pathological museum are being developed, whereby the presentation of gross pathology to the students can be satisfactorily accomplished.

Pathological Chemistry: At the close of last session the department lost the services of Dr. George Hunter as assistant professor. His appointment to the chair of biochemistry at Alberta, though a matter of personal congratulation, is a loss to the department. Dr. T. F. Nicholson has been appointed to the vacancy. There have been no noteworthy changes in the systematic teaching. In research, the department has continued its association with the department of obstetrics and gynaecology on the investigation of the toxemias of pregnancy.

Hygiene and Preventive Medicine: The session of 1929-30 in this department has been marked by the largest registration of candidates in the course leading to the diploma in public health since its inception. Fourteen students were enrolled. Seven of these came from the province of Quebec and were graduates of the University of Montreal and of Laval University. Included in this group were six fellows of the Rockefeller Foundation and three Connaught Laboratories' fellows. These latter came from the provinces of Saskatchewan, Ontario, and Quebec. Thirteen of these students completed the requirements for the diploma.

Courses of instruction in public health bacteriology, immunology and sanitary (public health) chemistry were provided for those proceeding to the diploma in public health.

Laboratory and didactic instruction for students in public health nursing and for those registered in the extension courses in hospital administration and for instructors in schools of nursing was given by members of this department. Didactic lectures and field and laboratory courses were given to students in the fifth year in the faculty of medicine. The field courses were carried on in September and May. This practical instruction for undergraduates in medicine

is made possible by the collaboration and assistance of members of the Department of Public Health of the city of Toronto and of the Department of Health, Ontario.

Other agencies and individuals, whose co-operation and assistance is of great value, enables the department to afford undergraduates in medicine in this university opportunities not available elsewhere. The department is under deep obligation to all those who give so freely of their time and energies in this undertaking.

Graduate students proceeding to the degrees of Ph.D. and M.A. have also been enrolled in the department. A course of lectures for students in the third year in arts (household science) has also been given. The total registration of graduates and undergraduates receiving instruction was:—

Graduates	20
Undergraduates	275
Nurses registered in diploma courses	41

The research work of members of the teaching staff in hygiene and preventive medicine is outlined in the report of the work of the Connaught Laboratories.

Medical Jurisprudence: The usual course of lectures was delivered. Recognising the necessity for a closer touch between the legal and medical professions, R. H. Greer, K.C., addressed the class during one of the periods. His lecture was intensely interesting to the class.

During the year groups of the class attended sessions of the inquests at the city morgue. This will familiarise the student with court procedure and the proper conduct of the medical man as a witness. In this matter the associate coroners for Toronto are pleased to have these groups of students attend any or all sessions over which they preside.

Graduate Studies: An increasing demand is made for graduate instruction in the faculty of medicine. This demand is met to the limit of our facilities. A most successful short course in internal medicine was conducted in June. Reference is made to this in an earlier part of this report.

The higher years in medicine are always available to any graduate who desires to attend and refresh his knowledge in this way. Moreover, the various laboratories are utilised by an increasing number of graduate students. All library facilities are open to graduates under the usual conditions.

Extension Lectures: Under the aegis of the Canadian Medical Association and the Ontario Medical Association extension courses are continued as in past years. Under the Ontario Medical Association these courses have continued in this province for eleven years and the trans-Canada project, under both associations, has completed its sixth year. This work is now too well known to demand detailed description. Lectures, demonstrations and clinics are conducted by groups of medical men from various medical centres in Canada. These groups address practitioners in all parts of this wide Dominion, often in remote districts. The University of Toronto plays its part in providing teachers. Last year 93 teachers from our faculty delivered 216 addresses in different parts of the country.

Research: A report on research in all departments of the university is published by the President. In the faculty of medicine an increasing amount of research is undertaken from year to year.

Art Service: The art service in the faculty of medicine has been in existence since 1925, when Miss Maria T. Wishart was appointed artist. During the past session a large amount of work has been carried on in the production of drawings and models required for the illustration of scientific papers or for museum purposes. Hitherto rooms have been provided for the artist in the anatomy building. In future, however, excellent accommodation will be available in the new laboratory building on College Street where rooms with excellent lighting and adequate equipment have been specially constructed for the purpose.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING

(C. H. Mitchell, C.B., C.M.G., C.E.)

There are many reasons for gratification with the work and the progress in this faculty during the session 1929-30. In reviewing the session's work, I feel that I can express the opinion that it has been the most satisfactory from an academic point of view since the war.

The standard of work in the various departments of the faculty, as performed by both staff and students, has been of a high order. I consider that by marked application and painstaking attention to their work and by genuine interest in it and in their students, the members of the staff of all grades have inspired a highly commendable reaction on the part of the students. This is a result much to be desired in academic work of the nature of applied science. The encouragement arising from this to the students on the one hand, and to the graduates and the engineering profession on the other, has been sufficiently evident during the year to draw favourable comments from various quarters. This I consider to be a very healthy sign for a university.

The full effect of the further increase in entrance standards by the addition of honour physics two years ago, is now being felt, and has specially manifested itself in the performance of the first year during the past session. Several rearrangements in departmental curricula, including both additions and reductions, have resulted in improvements in their courses of instruction.

In making any curriculum revisions, the council of the faculty has continued to keep in mind the broad principles which have so long been guiding factors in its policy by emphasising fundamentals and discouraging that undue specialisation which, during the past decade, has been a common tendency in many engineering colleges and faculties on this continent. It is now to be observed that this well-founded policy is more than ever being justified by the experiences of many such faculties, as has been disclosed in the reports and deliberations of the Society for the Promotion of Engineering Education, of which this university is an institutional member.

Attention might well be drawn, for instance, in connection with curriculum revision, to changes which now go into effect in the courses in civil engineering for next session. The number of options is reduced, the work is consolidated and concentrated, and specialisation is still further reduced.

As pointed out in last year's report, the increase of standards both at entrance and throughout the undergraduate courses still does not deter students from coming to this faculty in increasing numbers. This also is a most gratifying indication of the excellence of the work being accomplished. It is true that similar increases are being experienced in many of the engineering colleges both in Canada and the United States, although apparently not generally in the marked proportion that we are experiencing in Toronto. The point in this appears to be that not only are there increasing numbers due to the prosperity of the country and the growing demands for engineers, but so far as Toronto is concerned, this increase is occurring in spite of our steadily increasing standards. One feature in this respect which is worth noting is that in last session's first year there were twenty members who had taken one or more years in arts in our own or other universities before coming to this faculty.

With respect to increasing numbers of students, it is to be observed that the swing is very marked since the upturn four years ago, and that the numbers are now approaching those of eight years ago, when the large war year graduated. To illustrate this, the following statement is submitted, showing attendance of students during the past eight years in the undergraduate courses proceeding to degrees:

Attendance in Faculty of Applied Science

	—Years—				Total
	I	II	III	IV	Attendance
1922-23	139	167	182	255	743
1923-24	125	127	150	165	567
1924-25	116	121	113	138	488
1925-26	126	107	119	93	445
1926-27	163	110	110	104	487
1927-28	192	149	109	100	550
1928-29	204	165	131	100	600
1929-30	276	158	150	117	701

We have repeatedly expressed the view that numbers do not make a university; it is rather the quality of the instruction, the high standard and the inspirational value of the teaching personnel and the atmosphere of academic life and attainment, which, taken together, contribute most to its prestige. But there is a secondary index which pertains to all sectors of the university circle, and more especially to applied science, and that is the extent and excellence of its laboratories and the efficiency of its building accommodation. If the number of students increases and proportionate accommodation is not provided in both equipment and buildings, the efficiency curve drops in the same manner as it would were the high quality and the numbers of its staff to decrease. All these distinguishing characteristics enter into the well-balanced administration of a successful faculty or university, and must be appropriately combined to meet the changing needs of the country which forms the university's constituency.

As to the personnel of the staff in this faculty, the university is to be considered fortunate, in having men of their experience, their academic abilities, and their manner of securing close contacts with their students, a feature which has been marked in the applied science faculty, and doubtless has been a considerable factor in the traditional loyalty and interest of its graduates in the university. Another factor to which attention may be drawn is the extent to which members of the staff participate in affairs of the community and country by assisting not only in many societies and organisations of a diverse nature, but by taking their parts as citizens in various activities and movements over fields ranging from athletics to church and state.

On the material side, that of equipment and buildings, continued deficiencies in either soon reflect themselves in the quality and numbers of the students, and this material maintenance must be kept up and in step with the human side. In this respect this faculty has cause for gratification for the manner in which its recent requests are being met as to additional accommodation, especially in the departments of mining engineering and chemical engineering.

The programme now under way, whereby the mining mill is about to be very considerably extended, under plans drawn to the requirements of the department, will admirably meet the acute situation which has been the result of several years of serious overcrowding in this department. With this increased accommodation and the additional equipment about to be provided by the university, together with that in view from outside organisations who are interested in the welfare of this department, it is expected that there will be a great stimulation in this branch of applied science. It is also expected that there will be considerable advantage and increase in efficiency by the consolidation of this work in the one building, and by the use of a much greater variety of new equipment which will be made possible by the new accommodation. The academic work done in this department during the past session has, despite the inconvenience of overcrowding, been carried on in a highly satisfactory manner.

The overcrowding in the department of chemical engineering is still most acute, and notwithstanding the additional accommodation made possible this year by generous co-operation of other faculties, the coming session will see an

even more difficult situation, as the numbers are still increasing in the senior years. No relief can be expected as yet by space made vacant by the department of mining engineering, as it cannot get completely moved into the new building in time. Neither is any other space available in the Mining Building, which is the home of the department of chemical engineering, a building which is crowded to the utmost and increasing each year. We can only wait patiently until other departments which are located in the Mining Building can be accommodated elsewhere under plans now in contemplation, and submit to the continued overcrowding with the definite expectation that when that time arrives the space thus vacated will be made available for the department of chemical engineering. Only by this means, with such increased accommodation, can teaching efficiency be maintained in this rapidly growing department. Notwithstanding these difficult conditions, the academic progress in this department has also been of a high order, and the standing of the students, a high percentage of whom have secured honours, reflects great credit on the departmental staff.

In the department of civil engineering, although greatly lamenting the loss, by death, of Professor Gillespie, very satisfactory progress was made with a reduced staff under the reorganisation of the new head, Professor C. R. Young. For the coming session, it is hoped that the two new junior appointments will bring up the efficiency of the department by reducing the lecture load which the senior members have carried during the past session. The newly adopted curricula will also enable not only academic courses better adapted to the changing needs of the country, but more efficient organisation for instruction.

The department of mechanical engineering has made marked progress during the session, and by the excellence and variety of its work and the demand for mechanical engineers, has attracted additional students until it now has the largest number in the faculty. Both faculty and department felt the loss of Professor J. H. Parkin, who, at the beginning of the session, resigned to accept the important post of director of aeronautical research with the National Research Council at Ottawa. In the loss, however, of a valued and distinguished member of its staff who gave long and useful service to the university, the faculty feels that its sacrifice is for the benefit of Canada at large, especially in this important phase of the country's development. The department, in the consequent changes, has met the altered conditions by two new junior professorial appointments, which, it is hoped, will also assist in dealing with the increasing number of students. During the session valuable additions and some rearrangement of equipment have been brought about, as the result of the tour abroad of the departmental head, Professor Angus, who spent the previous year in Europe, studying and visiting many educational and industrial centres.

In the department of metallurgical engineering, with which is combined the ceramic engineering incorporated five years ago, excellent academic progress has been made. Although this department has a small number of students, it is realised that the importance to Canada of this branch of applied science is very considerable, and as the years progress it is found that an increasing number of these graduates are absorbed in our own country.

The department of electrical engineering has continued to maintain its traditional very high standard of academic excellence. Although still understaffed in the higher positions, and with still a very large number of students, the department turns out each year a steady quota of graduates who continue to be promptly absorbed in the electrical industries and construction which has been so marked in the recent years of Canadian development. The next session will be entered upon with two new appointments of younger members of the staff, who, by outstanding ability, have earned positions of assistant professor and lecturer.

The five-year course in architecture, put into effect two years ago, is progressing most favourably, and the advantages of the change are now quite

apparent. This department has not only markedly improved its academic position in the past few years, but the number of students in it has steadily been increasing. There is an indication that this increase will continue at a greater rate. A noteworthy feature during the session, in connection with this department, has been the change of its name to "School of Architecture." This has not carried with it any change in its organisation or its functions, but has been more with a view to bringing it into line with university practice in Great Britain and the United States, in which the term school or college has been in general vogue for some time.

The participation of the departments of this faculty in the work of the School of Graduate Studies has concerned six graduates proceeding to post-graduate degrees. Much of the work of these graduate students has involved research undertaken under professors of the several departments concerned, and very satisfactory performance on the part of the candidates has been reported.

The work of the School of Engineering Research has progressed most satisfactorily during the session. The fact that the efforts at research by the members of the staff of this faculty are all co-ordinated under the committee of management of this school ensures an efficiency and concentrated effort which has proved of great advantage in producing effective work in useful researches. It is not only a custom, but a rule, that at meetings of this committee, the various members put forward their research proposals, describe their purpose, and obtain the approval of their colleagues on the committee before proceeding with their researches and before the funds or the appointments of research assistants are sanctioned. This method of procedure has proved invaluable to secure hearty co-operation between members and their departments, and has produced a confidence and interdependence which permeates the entire faculty.

It is the belief that by this organisation, the School of Engineering Research best serves the university and controls the judicious expenditure of the funds which are entrusted to the faculty for research purposes. It has been the frequently expressed desire of the members of the committee of management that the expenditure of research funds under its control be most jealously guarded and controlled, so that they will be used in the most effective manner for prosecuting that type of research which will be of genuine value in applied science and in the development of the researches of the country, as well as to further scientific researches generally.

It is not the purpose of this report to describe the session's work of the School of Engineering Research, or to enumerate the researches which have been in progress; I am sending forward a detailed report herewith as chairman of the committee of management, which gives this information, and which has been adopted and approved by the committee.

It may be useful, however, to point out that the research work of the session has embraced a total of twenty-two distinct researches performed through the agency of seven departments, by twenty-seven professors and research assistants.

The department of engineering physics has also in recent years greatly broadened its usefulness and efficiency in co-operation with other departments of the faculty, by expanding its courses in acoustical and illuminating engineering, both of which are branches of applied science that to-day are very much to the front throughout the country. It is gratifying to find that the filling of these needs in the education of young engineers has produced such a favourable reaction, not only from the industries concerned, but from the general public. The advantages of the policy, adopted many years ago, of giving instruction in these and cognate physical subjects within the faculty itself from an engineering standpoint have, in the past few years, been more apparent.

As each session passes, this faculty finds itself still further broadening its services to other faculties, through the medium of the department of engineering drawing. This opportunity for co-operation is pleasing, and is to be encouraged.

However, with the increasing number of students in our own faculty and the tendency to add new groups from others, the question of accommodation in drafting rooms may shortly again confront us, as it did when such large numbers of students were here just after the war. It is in this department that adequate space per student becomes a factor, for in the first two years of the student's life, he spends much of his time at his drafting table, which is "home" to him so far as the faculty is concerned. It is here that the early training directly under the hands of the instructors and demonstrators counts much, not only in academic work, but in character building. It is in drafting rooms and laboratories that those peculiar opportunities are offered whereby applied science students learn to organise and co-operate, functions which are very necessary to them later in life. Obviously space thus employed should not be unduly encroached upon.

In the department of surveying the same remarks may apply. In this department the outdoor work is largely confined to the autumn term, but to the students of other departments and faculties who take additional work in the six weeks' summer session at the University Survey Camp at Gull Lake, the facilities thus offered for concentrated field work are highly important. The academic work done at this camp has in the past few years been not only an essential and invaluable portion of the student's "laboratory" training, but it must always be borne in mind that were it not for the facilities of this camp, this highly necessary instruction could not be given, counted either in terms of time or of accommodation. On this account it is desirable to point out that capital expenditure upon maintenance and operation charges for this part of the faculty's work are well invested. This department has been doing very satisfactory and useful work, both in Toronto and at its camp.

The outside activities of the staff of the faculty have been considerable during the past year, many instances of which, in connection with scientific engineering, and economic conventions and congresses, have brought no small credit to the university. Members have, throughout the year, participated in activities of this nature, not only in various cities of Canada and the United States, but in England, France, Spain, Belgium, and Germany.

In conclusion, I desire to draw attention to the very satisfactory situation which now exists with respect to the demand in Canada for applied science graduates. It was reported last year that the time was passed when these graduates were seeking employment outside of the country. This condition continues this year, and as evidence, the reports which have been obtained as up to the 1st of July upon the one hundred and sixteen of this year's graduates in applied science, indicate that all have already been absorbed within Canada. It would appear from this, as well as from other signs which are not difficult to read, that there will likely be increasing demands for graduates within the country during the next few years, and that the classes now going through in this faculty will not in the least crowd the profession, but that, in fact, a greater number may likely be required.

(4) REPORT OF THE DEAN OF THE ONTARIO COLLEGE OF EDUCATION

(*Dr. Wm. Pakenham*)

The exchange student-teachership established early in the session has been successful. The Scottish National Committee for the Training of Teachers sent Mr. W. G. Beaton, M.A., to the Ontario College of Education, and the university sent Mr. O. E. Ault, M.A., B.Paed., to Edinburgh University. The reports upon the work done by both men have been highly commendatory.

Mr. A. C. Lewis, M.A., B.Paed., science master in the University Schools,

resigned at the end of the session to accept the principalship of East York Collegiate Institute. Mr. Lewis carries with him to his new post the most cordial good wishes of his colleagues in the College of Education.

The registration of the session shows that the response of the students to the offer of supplementary courses for certificates in physical education, art, music, and commercial subjects has been prompt and encouraging. But this response has served to stress a difficulty which the increase of registrants in the high school assistants' course and the recent institution of the library school created. The College of Education needs more lecture-room space and more library space. These needs are now urgent.

The interest in advanced courses in education continues to increase. The registration in degree courses in pedagogy during the session was 165 as against 143 in the previous session, and the number of pedagogy degrees awarded was 41 as against 25.

(5) REPORT OF THE FACULTY OF HOUSEHOLD SCIENCE

(Dr. C. C. Benson, Secretary)

The registration in this faculty has again shown an increase during this session and again with much the larger number of students registered in the pass course, as is shown in the schedule below:—

	Honours	Pass	Total
First year	14	55	69
Second year	9	44	53
Third year	8	28	36
Fourth year	5	37	42
Occasional students	..	..	3
	36	164	203

These pass students are coming chiefly from Toronto, but a number of them have, as happened last session, entered the higher years of this course, coming from other universities where household science is not on the curriculum, or from schools where it is taught but where the study is not carried to more advanced branches. We thus have registered with us, students who have taken one, two, or three years of work elsewhere before coming to us. This year we have had students who have come to us from the universities of Alberta, Iowa, McGill, Queen's, and Western Ontario, and from Ewha College, Korea, from Macdonald College and from MacDonald Institute. In general, these students have worked in well with the students who have been here from the first year. There have been four students from MacDonald Institute registered in our fourth year and we are looking for a still larger group of them next session.

Students have also been admitted to advanced standing in this faculty coming to us from the faculty of arts.

During this session we have stiffened the examination requirements in the pass course to make our standards similar to those of the faculty of arts. The more severe standard has naturally led to an increase in the number of failures in the May examinations, but the students who are permitted to proceed with their course, are, of course, those who are better prepared and who should be ready to make good after graduation. We are also requiring a fifth subject of honour matriculation as entrance to the honour course, and adding a sixth subject to the first year of the pass course. Both of these changes have been shown, by experience, to be advisable and will make our requirements similar to those demanded in the faculty of arts.

With the increase of registration, office work has been correspondingly increased, classes have been large and laboratories have been crowded. It has been a busy year for all the staff but there are evidences of good work having been accomplished.

(6) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY

(Dr. C. D. Howe)

The number of students registered in the Faculty of Forestry at the beginning of the year 1929-30 was the same, sixty-six, as that during the previous year, but for various reasons four men dropped out in the first few weeks of the term. As usual, much the greater number of students came from Ontario, but we had one each from Alberta, Saskatchewan, Manitoba, Quebec, Nova Scotia, Newfoundland, England, and Holland. From an academic standpoint we have had a successful year as may be indicated by the fact that only about one-half as many failed in the final examinations as in the previous session. We attempt to improve the quality of the work in the faculty each year through the gradual raising of the entrance requirements and changes in teaching methods. That we have been fairly successful in this is attested by the fact that there has been in the past five years a substantial decrease in the percentage of men who failed or were starred in the final examinations.

Owing to the depressed condition of the pulp and paper industry the field of work for this year's graduates and the undergraduates has been very much restricted. For the past few years the industry has taken about one-half of the graduates for permanent positions and about the same proportion of undergraduates for summer work, but this year it took none of the graduates and only seven of the undergraduates. No new forestry work is being initiated by the pulp and paper companies. In fact, some of them have discharged their foresters as part of their policy of retrenchment. This state of affairs has been brought about, not by the actual operators in the forest, but by undue expansion under the inducement of purely promoters' profits, which in turn led to over-production and more lately by a struggle among certain financial groups for the capitalistic control of the industry. Meanwhile the forests and forestry suffer.

Fortunately, however, the forestry work of governmental organisations is increasing, particularly in Ontario. Nine of the eleven graduates were given positions by the Provincial Forestry Branch and one each were taken by the Dominion and British Columbia. This is the largest number engaged by Ontario in any one year. The province now has the largest staff of technically trained foresters of any organisation in the country. This speaks for itself in regard to the enlightened and progressive policy of the provincial government in the matter of developing and conserving its forest resources.

Of the fifty-one undergraduates, twenty-nine have found summer employment with the Provincial Forestry Branch, fifteen with the Dominion Forestry Branch, and seven with pulp and paper companies.

As chairman of the research committee of the Forestry Advisory Board, Professor White this summer will supervise the work of parties carrying on investigations into forest conditions in the Parry Sound, North Bay and the Sault districts. Professor Dwight will continue his work on the growth and yield of pulpwood stands in the Cochrane and Sudbury districts. Mr. Hosie will also go on with this studies in forest type classification, principally in the Pembroke district.

(7) REPORT OF THE DEAN OF THE FACULTY OF MUSIC

(Dr. E. C. MacMillan)

During the session 1929-1930 the number of students registered was 41. In the course leading to the degree of bachelor of music, 14 registered in the first year, 12 in the second year, and 11 in the third year. Four candidates were registered in the course leading to the degree of doctor of music.

The following lectures were given by members of the faculty of music:

Ernest MacMillan, Esq., B.A., Mus. Doc.:
For third year students—
January 6—"Counterpoint and Composition."
January 20—"Contrapuntal Treatment of Hymn-Tunes."
February 17—"Continuous Modulation."
March 7—"The Construction of Fugues."

H. A. Fricker, Esq., M.A., Mus. Doc.:
For students of all years—
January 10—"Orchestration."
January 17—"Orchestration."
January 24—"Choral Music," including motet "Jesu, Joy and Treasure," by Bach.
January 31—"Choral Music," including "Requiem" by Verdi.

F. A. Mouré, Esq., Mus. Doc.:
For students of all years—
January 13—"Glinka and his School."
January 27—"The later Russians."
February 10—"Rubinstein, Tschaikowski, Dvorak."
February 24—"The German Romanticists."

L. Smith, Esq., Mus. Bac.:
For second year students—
February 7—"Schubert's Swan Songs."
February 14—"Haydn's Quartet in C Major" (The "Kaiser").
February 21—"Elementary Writing for Strings."
February 28—"Continuous Modulation."

A choral and orchestral concert was given on January 29th by the conservatory choir and orchestra, the programme including Beethoven's fourth symphony and Gabriel Fauré's "Requiem," the latter given for the first time in Toronto. Other activities of the conservatory choir include appearances at Massey Hall with the Toronto symphony orchestra and with the conservatory orchestra at the conservatory's closing concerts. Other notable works performed by these organisations for the first time in Toronto include Bach's "Magnificat," Ernest Bloch's "Concerto Grosso," and Constant Lambert's "Rio Grande."

The fifth annual presentation of Bach's "St. Matthew Passion," under the auspices of the university, was given on Tuesday evening, April 15, before a large audience, which included some five or six hundred students.

Dr. F. A. Mouré, university organist, attracted as usual large audiences to his series of organ recitals which have become so prominent a feature in the musical life of the university.

Mr. J. L. Richardson, who has recently commenced his duties as university carillonneur, is arousing interest by his series of Sunday afternoon recitals.

The series of recitals of chamber music for students given in Convocation Hall by the Hart House quartet and assisting artists bids fair to become a regular feature of musical life in the university, and the good attendances testify to the interest taken in them by our students.

The Sunday evening and Friday afternoon recitals at Hart House continue to hold their place among the most popular events in undergraduate life. Mr. J. Campbell McInnes, assisted by Mr. E. Mazzoleni and others, has directed the usual series of songsters with customary success. To the musicians who have so

kindly volunteered their services for these concerts we should like to express our most cordial thanks.

The number of candidates entering for the examinations of the Toronto Conservatory of Music for the present season has been 20,706, as compared with 21,285 for the season 1928-29. The necessity of concentrating examinations in the western provinces in a smaller number of centres than formerly has led to the adoption of a new policy which is no doubt to some extent responsible for the slight decrease. Entries for the year were distributed as follows: Piano, 12,208; violin, 643; singing, 515; sight singing, 86; organ, 31; violoncello, 4; theory (rudiments, history, harmony, counterpoint, form), 7,219.

(8) REPORT OF THE DEAN OF THE SCHOOL OF GRADUATE STUDIES

(*Professor J. Playfair McMurrich*)

During the session 1929-1930 the number of students registered in the School of Graduate Studies was 474, an increase of 60 over the preceding session. Of this number 362 were residents of the province of Ontario, 18 of British Columbia, 16 of Saskatchewan, 15 of Manitoba, 12 of Nova Scotia, 9 of New Brunswick, 3 of Alberta, 3 of Quebec, 2 of Prince Edward Island, 1 of Newfoundland, 18 of the United States, and 15 of Great Britain, the overseas dominions and foreign countries. The increase in the total number of students is highly gratifying, as is also a decided increase in the number from the provinces of Canada other than Ontario.

The degrees sought are shown in the following table:

	Men	Women	Total
Candidates for the degree of Ph. D	66	21	87
Candidates for the degree of M.A.	122	42	164
Candidates for the degree of Ch.M.	1	..	1
Candidates for the degree of M.A.Sc.	6	..	6
Candidates for the degree of C.E.	3	..	3
Candidates for the degree of E.E.	1	..	1
Candidates for the degree of D.Paed.	51	5	56
Candidates for the degree of M.S.A.	17	1	18

In addition, 69 men and 69 women were registered as graduate students without being definitely candidates for a degree,

The distribution of the students according to their major study was as follows:—Anthropology, 2; astronomy, 1; biochemistry, 9; botany, 31; chemical engineering, 4; civil engineering, 3; chemistry, 22; classics, 17; theory of education, 4; electrical engineering, 1; English, 29; epidemiology and biometrics, 2; food chemistry, 4; geology, 14; German, 4; history, 13; household science, 2; hygiene and preventive medicine, 3; mathematics, 10; metallurgy, 1; mineralogy, 3; mining engineering, 1; pathology and bacteriology, 4; pathological chemistry, 3; pedagogy, 56; pharmacology, 1; philosophy, 77; physics, 24; physiology, 4; physiological hygiene, 2; political science, 28; psychology, 37; romance languages, 20; semitic languages, 6; surgery, 1.

During the year 16 students fulfilled the requirements for the degree of Ph.D.; 96 those of the degree of M.A.; 2 those of the degree of M.A.Sc.; 2 those of the degree of C.E.; 1 those of the degree of E.E.; 5 those of the degree of D.Paed.; 1 those of the degree of M.S.A.

The candidates who received the degree of Ph.D., together with the titles of their theses, were:

L. V. BELL,—Geology of the Boston-Skead area with special reference to rock alteration (carbonation) in this and related Canadian Precambrian areas.

MISS A. A. BERKELEY,—The development of the commercial pandalids of British Columbia.

Miss O. L. Clark—The idea of pollution in Roman paganism.
H. B. Collier,—The action of light on enzymes.
D. C. B. Duff,—
(1) A physiological study of certain parasitic saprolegniaceae.
(2) A modification of the Orskov single-cell technic.
(3) An improved pipette manipulator.
(4) The detection of indol in bacterial cultures.
(5) A possibly diphtheroid organism from a case of cerebro-spinal meningitis.
(6) The bacterial spoilage of salmon, with reference to the source of the organisms responsible for decomposition.
J. L. Hart,—Life history of the common whitefish.
W. A. Jones,—Killarney gneisses and xenoliths at Sudbury.
Miss C. C. Krieger,—
(1) On trigonometrical series and their localised properties.
(2) On Fourier constants and convergence factors of double Fourier's series.
W. D. M. Lloyd,—Contributions to cardiology.
W. B. Mumford,—Social adjustment of native peoples to contact with Europe.
A. W. H. Needler,—The migrations of haddock and the interrelationship of haddock populations in North American waters.
A. L. Pritchard,—
(1) Taconomic and life history studies of the ciscoes and lake herring of Lake Ontario.
(2) Descriptions of the spawning habits and fry of the lake herring (*Leucichthys artedi*) in Lake Ontario.
Miss H. Stantial,—Chemical conditions which bring about the formation of ascospores in saccharomyces cerevisiae.
J. J. Talman,—Life in the pioneer districts of Upper Canada, 1815-1840.
T. C. M. Taylor,—On the development and cladorhize organism of the plant body in *Equisetum arvense L.*
R. S. Willison,—Wound-gum in peaches and grapes: Its relation to the invasion of fungous wound parasite.

The open fellowships provided for students in the School of Graduate Studies for the session 1929-1930, by the generosity of the Canadian Pacific Railway, Imperial Oil Limited, the Robert Simpson Company, Colonel R. W. Leonard, Lady Kemp in memory of the late Sir Edward Kemp, and Sir Joseph Flavelle have been awarded as follows, the universities from which the recipients graduated and the departments in which they will pursue their studies being indicated:

Miss M. I. Grant, B.A., British Columbia, M.A., department of English.
D. Owens, B.A., Manitoba, department of philosophy.
M. P. Boone, B.A., New Brunswick, department of classics.
W. A. F. Hagborg, B.S.A., Manitoba, department of botany.
Miss E. Riggs, B.A., British Columbia, department of pathology and bacteriology.
J. R. Daniells, B.A., British Columbia, department of English.
J. M. Rowat, B.A., Saskatchewan, department of mathematics.
R. G. Riddell, B.A., Manitoba, department of history.
Miss A. E. McKay, B.A., Dalhousie, department of mathematics.

Appointments to other fellowships open to graduate students have been made as follows:

The Alexander Mackenzie fellowships:—Miss K. E. Killam, B.A., Dalhousie, department of history; W. H. Troop, B.A., Toronto, M.A. McGill, department of political science.

The Ellen Mickle fellowship:—J. A. Dauphinee, Ph.D., M.D., Toronto.

The University of Toronto War Memorial:—L. B. Leppard, B.A., Toronto; W. E. Ricker, B.A., Toronto.

The Education fellowship:—G. R. Smith, B.A., Toronto.

Ontario Government fellowship:—W. M. Gammon, B.S.A.

During the year negotiations were carried on with the Ontario Veterinary College with a view to the increase of interest in the graduates of that college in investigations bearing on veterinary medicine and surgery. As a result of these negotiations courses leading to the degrees of master and doctor of veterinary science were planned, the administration of the regulations covering these degrees being placed in the care of a conjoint committee, composed of three members chosen from the council of the School of Graduate Studies, the dean of the School of Graduate Studies being *ex officio* chairman of the committee, and three members of the Ontario Veterinary College. The arrangement is essentially the same as that made three years ago with the Ontario Agricultural College, the Veterinary College, like the Agricultural College, being in affiliation with the University of Toronto.

(9) REPORT OF THE DEAN OF THE FACULTY OF DENTISTRY

(*Wallace Seccombe, D.D.S.*)

Marked progress has been made in dental education and research since the university established the faculty of dentistry five years ago. Not only has the undergraduate course been greatly improved, but forward steps have also been taken in the furtherance of graduate services, including extramural lecture-clinics. Possibly the most outstanding advance, however, has been in the development of dental research. Full advantage has been taken of the assistance and facilities of other departments and faculties and we appreciate fully the cordial and helpful co-operation received throughout the whole university.

During the month of March the annual meeting of the American Association of Dental Schools was held in Toronto. There were present representatives from every dental school in United States and Canada, all of whom had an opportunity to visit the dental building and inspect the teaching facilities in dentistry of this university.

As president of the association, I received, following the meeting, many letters expressing appreciation to the University of Toronto for the courtesies extended. All reports indicated that the meeting proved to be a great inspiration to those who attended.

The Carnegie Corporation has appropriated $20,000 to the American Association of Dental Schools to make a curriculum survey and analysis in dentistry. The following committee of five has been named for this purpose: Deans Ward, Ann Arbor; Turner, Pennsylvania; Friesell, Pittsburgh; O'Rourke, Louisville; and myself as chairman. It is proposed that this study extend for a two-year period, the hope being that it will result in some decision being reached regarding the relative merits of the various plans of dental education now in operation.

In the conduct of a school of dentistry it is necessary to meet, in addition to the teaching problems, many difficulties that are comparable to those encountered in the management of a general hospital. If the training of dental students were confined to lecture and laboratory classes, supplemented by demonstration clinics, the administration of the faculty would be greatly simplified. The requirements of dental practice are such, however, that every undergraduate must be individually trained to actually operate for patients, and attain clinical proficiency before graduation. During the last two years of the five-year course in

this faculty, students receive patients and perform operations for them. This requires the maintenance of a dental infirmary equipped with adequate facilities for senior students to practise their profession.

The clinical requirements in dental education impose a heavy obligation upon the faculty. Changes in dental equipment in the past decade have been almost revolutionary and, if our students are to be trained in modern methods of practice, we shall be compelled at an early date to face the renewal or replacement of much of our present equipment. This question is giving the faculty considerable concern at the present time and its permanent solution will doubtless require the setting aside each year of a sum for this definite purpose.

During the past year Professor W. E. Cummer gave a series of thirteen lecture-clinics throughout western Canada. We have received letters from each of these centres speaking most highly of Dr. Cummer's work and expressing thanks to the university for this service. Our graduates throughout western Canada are very appreciative of these annual lectures.

Five dental practitioners' courses, each of one week's duration, were given during the year. These were all well attended and were made self-sustaining.

The dental nurses' class was comprised of nineteen young women, of whom sixteen were reported upon favourably to the Royal College of Dental Surgeons and were recommended to that body for graduation.

The total registration in dentistry, session 1929-30, was 247, compared with 249 the previous year. This number includes 11 graduates proceeding to the degree of bachelor of science in dentistry.

The dental library grant of $2,000 from the Carnegie Foundation made it possible for us to make a much-needed extension in the faculty library. The additional facilities have been greatly appreciated both by the students and the staff.

We are indebted to Professor Holman for lecturing in bacteriology during the illness of Professor Graham.

Dr. Wm. Magner was added to the staff in pathology, Dr. G. C. Cameron in bacteriology, and Dr. Frank M. Lott in prosthetic dentistry.

We regret to record the resignations of Dr. H. M. Robb and Miss E. F. Trent, both of whom have given excellent service in their respective departments.

(10) REPORT OF THE DIRECTOR OF THE SCHOOL OF HYGIENE

(J. G. FitzGerald, M.D., LL.D., Director)

The work of the School of Hygiene for the year ending June 30, 1930, is briefly dealt with in this, the third report since its establishment. No change in organisation has taken place during this period. The departments of hygiene and preventive medicine (also a department of the faculty of medicine), of epidemiology and biometrics, of physiological hygiene and of public health nursing are the individual units. The last-named department is independent and autonomous from the administrative standpoint. Hence the activities of the department of public health nursing will not herein be referred to.

The promotions and appointments are as follows:

Department of epidemiology and biometrics—Dr. N. E. McKinnon from the rank of lecturer to that of assistant professor; Miss M. A. Ross from the rank of demonstrator to lecturer; Dr. A. E. Berry from the rank of demonstrator to lecturer.

Department of physiological hygiene—Dr. E. W. McHenry from research assistant to lecturer; Dr. D. L. Maclean, research associate.

The total staff of the three departments numbers twenty-four.

During the year the registration of graduate students in the course leading to the diploma in public health has greatly increased, so that for the second year

in succession it is possible to report that the largest number has been enrolled since its establishment. This year seven students from the province of Quebec, graduates from the universities of Laval and Montreal, constituted half of the total number in this course. Others from Saskatchewan and Ontario made up the remainder. The attendance of this large number of graduates from Quebec is noteworthy. It is of interest and of significance from several points of view. The excellent opportunity afforded medical graduates from different parts of Canada engaged in public health work to come into intimate association during the academic year must, as time passes, prove to be of value from a national standpoint.

Several graduates, as will be seen by reference to the registration table, have been conducting research in hygiene and preventive medicine, in epidemiology and biometrics and in physiological hygiene, in fulfilment of requirements of the School of Graduate Studies for the degrees of master of arts and doctor of philosophy. Undergraduate courses for students in the faculties of medicine, arts and household science and the department of university extension, as well as for graduate nurses registered in the course for the diploma in public health nursing or that for administrators and instructors in schools of nursing, have been conducted during the year.

The field course for students in the faculty of medicine who have just completed the work of the fifth year was attended by the largest number of students in May and June, 1930, since this course of instruction became obligatory in 1924. The many interesting and unusual features of this course are a result of the splendid co-operation and assistance received from members of the Department of Health of Ontario, from many persons on the staff of the Department of Public Health of the city of Toronto, and a number of individuals and corporations, to all of whom the university is indebted for the provision of such facilities for extramural work.

During the year the work of the school has been observed by visitors from many countries. Among these may be mentioned China, Japan, India, Belgium, France, Finland, Italy, Hungary and Brazil.

Activity in the field of research and investigation during the period under review has been marked. The intimate relationship of the Connaught laboratories and the school of hygiene has made possible the continuance of joint enterprises in the exploration of several problems of considerable interest.

REGISTRATION IN THE SCHOOL OF HYGIENE

	1927-28	1928-29	1929-30
A. Graduates—			
Candidates for the diploma in public health	7	11	13
Candidates for the degree of M.A.	2	2	2
Candidates for the degree of Ph.D.	3	4	5
Occasional students	3	1	..
B. Candidates for the diploma in public health nursing	53	34	41
C. Undergraduates—			
Faculty of medicine, 5th year	109	112	134
Faculty of household science, 3rd year	63	65	35
Department of social service	28	36	..
Department of university extension	58	82	45

(11) REPORT OF THE LIBRARIAN

(W. S. Wallace, Esq., M.A.)

I beg to submit the following report on the work of the university library for the year ending June 30, 1930.

The number of volumes added to the library during the year has been 11,057, and the number of pamphlets 3,700. The total number of bound volumes in the library is now 252,486, and the total number of pamphlets 90,276.

The statistics of the use of the library by undergraduates, in comparison with previous years, are as follows:

	1921-22	1923-24	1926-27	1928-29	1929-30
Day books	41,928	80,172	106,485	117,267	144,925
Night books	18,998	31,314	39,779	48,114	59,552
Week books	4,792	12,316	13,014	17,484	24,133
Totals	65,718	123,802	159,278	182,865	228,610

These figures do not include the large number of books taken for consultation from the reference shelves, of which over 16,000 have been replaced during the year by the library assistants; nor do they include the 33,088 books circulated at the professors' and graduates' register, as against 28,740 circulated last year.

The increase in the circulation of books among undergraduates, which has averaged no less than 25 per cent. for the whole year, has placed a heavy strain on the staff of the library; and if, as seems probable, this increase continues next year, it will not be possible for the library staff to meet the demands made upon them, unless authority is granted for the employment of additional assistants.

Under normal circumstances, I should be decidedly apprehensive about the way in which the library will weather the coming year, since, as I have already pointed out, the stack room is full, the reading rooms are frequently crowded, and the space for workers is inadequate. But with the statistics of circulation soaring year after year, the conditions under which the library is administered tend to become more and more difficult, in a sort of geometrical progression. Unless the library is afforded relief within a very short space of time, either by the building of a new library, or the addition of a new wing, or in some other way, it will be impossible to keep up the standard of service on which the library has prided itself, and which, I believe, has contributed to the increase in circulation.

Since I had the honour of being appointed librarian of the university in 1923, the board of governors have been most generous to the library. The annual appropriation for the purchase of books, periodicals, binding, etc., which was only $18,000 in 1923, has now increased to $46,000. The staff of the library has been enlarged, and the salary scale has been revised upwards, so that the library is now able to attract to it graduates of the university who have studied abroad, or who have taken professional courses in accredited library schools.

But the progress which has been made, although gratifying, is not enough. During the same period, there has been going on among the university libraries of the United States an expansion even more pronounced. The library of the University of Chicago, for example, spent last year on books and periodicals, including supplies, over $150,000,—more than twice the outlay in so recent a year as 1925-26. There are six or seven universities in the United States, ranging from Harvard, with a book expenditure of $636,000, to Illinois, with a book expenditure of $117,000, which expend on books and periodicals more than twice what Toronto does. Indeed, Toronto's library expenditures are on a scale comparable not with American universities of a similar size, but with smaller colleges. It is interesting to note, for example, that Dartmouth College, with a student enrollment of 2,200, spends more on its library than the University of Toronto, with an enrollment three times as great. It is clear that if Toronto is not to fall behind in the race, she must spend on the library more proportionately even than she has in the past. The figures of circulation, not only in the University of Toronto library, but in other university libraries as well, attest the fact that the library is becoming more and more a vital and central element in the university. This fact is being recognised in the best universities in the United States by greatly increased endowments and budgets. It would seem that the time has come, especially now that we are faced with the problem of adding to the library building, of taking stock of our position, in relation to the libraries in universities

comparable with ours. Does the University of Toronto, for instance, spend on its library as large a proportion of its total revenues as, let us say, the University of Michigan? Comparisons of this sort are sometimes treacherous, and I should not like to commit myself to percentages; but I have no hesitation in saying that the University of Michigan devotes to its library a considerably larger proportion of its revenues than does the University of Toronto. Yet the University of Toronto library is expected to give a service just as effective as if it had the revenues of other institutions. In particular, with its present revenues, it cannot pretend to give to post-graduate students the same facilities as they will find in other places.

(12) REPORT ON RESEARCH

(Anatomy, under direction of Professor J. P. McMurrich)

Professor McMurrich has completed a study of Leonardo da Vinci as an anatomist, the results being now in press for the Carnegie Institution, Washington, D.C.

Professor W. H. Piersol has completed and published a paper on pathological polyspermy in the ova of amblystoma.

Professor J. C. Watt—(1) has continued his observations on the deposition of calcium salts in bone and has a paper on the subject in preparation.

(2) He has also studied a very rare anomaly of the heart, and presented a preliminary notice of it at the annual meeting of the Royal Society of Canada.

(3) He has also brought to completion a study, in collaboration with Dr. H. W. Johnston, of the musculature of the female urethra in connection with a surgical operation devised to remedy a defect of that structure.

Professor E. A. Linell has been engaged during the session on the following investigations.

1. The histogenesis of neuroglia (with Dr. Mary I. Tom).
2. A study of the superior cerebral veins.
3. A case of anterior poliomyelitis (with Dr. I. Erb and Dr. C. Helen Craw).
4. A case of Landry's paralysis (with Dr. W. Magner).
5. A case of syringomyelia (with Dr. O. Klotz).

Professor H. A. Cates—(1) with the assistance of Dr. Walker and with co-operation of the department of obstetrics and gynaecology, has carried out an extensive series of measurements of new-born children and of their mothers. It is intended to continue this study during the coming session, indications of important results having been obtained.

2. He has also made observations on the range of variations in the pelvic angle.

3. And has also made determinations of the location of the centre of gravity of the human body in the sagittal plane.

Dr. R. K. George—(1) completed and published a paper of finger-length types, based on observations made upon students in the department.

(2) He has also begun, in collaboration with Dr. Linell, a study of the distribution of nerves to the muscles of the lower limb.

Dr. Mary I. Tom has collaborated with Dr. Linell in a study of the histogenesis of neuroglia.

Dr. D. A. Irwin has made extensive studies—(1) on the distribution of Auerbach's plexus in different portions of the digestive tract.

(2) On the innervation of blood vessels.

(3) On the motor nerve-endings of vertebrates.

H. LeMasurier has completed models illustrating the morphology of Brunner's glands.

Astronomy, under direction of Professor C. A. Chant

During the summer of 1929, Professor R. K. Young made an investigation into the tides and seiches on Lake Huron. The results obtained have been published in the Journal of the Royal Astronomical Society of Canada.

Mr. W. M. Kenny investigated the correlation of wave-length and absolute magnitude in the spectral lines of stars of types F8 and K2 from plates secured at the Dominion Astrophysical Observatory in British Columbia.

Mrs. Krotkov determined the nature of the errors in the screw of the Toepfer measuring engine and the results of this work will be published shortly. The remainder of Mrs. Krotkov's time has been devoted to the compilation of a catalogue of stellar parallaxes.

Biochemistry, under direction of Professor Wasteneys

As in recent years the research work in the department of biochemistry has been mainly along the lines of enzymes and nutrition. Again, as in recent years, we have enjoyed the advantage of close co-operation with other departments, particularly the departments of medicine, pediatrics and physiology, as well as the Ontario Agricultural College and the Ontario Research Foundation. The various researches undertaken and in progress may be summarised as follows:

Mr. H. Bruce Collier has continued his study of the action of light on enzymes. He has succeeded in demonstrating that the assumed destruction of urease by visible light is due entirely to the short infra-red, though infra-red was shown to be less destructive than ultra-violet. The hydrolytic action of malt diastase and pepsin, in the presence of substrates, was found to be stimulated by visible radiation. These and other results were embodied in a Ph.D. thesis.

Dr. E. J. Maltby, in collaboration with the department of medicine, has been engaged in a study of human gastric digestion of proteins under normal and pathological conditions. Dr. Maltby has also investigated the digestion of proteins in a dog which has been depancreatised for a considerable period. Both these researches are still in progress.

Mr. H. Branion has continued his investigation of the vitamin content of fish liver oils, particularly those of the burbot. Burbot liver oil was found to be a potent source of vitamins A and D. It was found to lose a considerable proportion of its vitamin A content on standing at room temperature for twelve months. Some burbot liver oil was found capable of hydrogenation to varying degrees of hardness with loss of vitamin potency. A sturgeon oil was found to contain no vitamin A. Several cod liver oils produced by different processes were assayed for vitamins A and D. Some of these assays were made in collaboration with the Biological Board of Canada.

Miss F. I. Hargreaves, in collaboration with the department of food chemistry and under the direction of Professor C. C. Benson, has made a study of the metabolism of pigeons.

Mr. B. F. Crocker has made a study of equilibrium in peptic synthesis in order to test the possibility that the inhibition of protein synthesis by addition of protein is due to removal of enzyme. His results, which are not yet complete, indicate that inhibition of synthesis is due to the influence of the added protein on the condition of equilibrium.

Mr. W. D. McFarlane, in collaboration with the department of chemistry at the Ontario Agricultural College, has commenced an investigation of metabolic changes occurring in the hen's egg during embryonic development.

Dr. G. W. MacGregor, in collaboration with the department of oto-laryngology, has commenced a comparative study of the effect of feeding various tissues on the growth of tadpoles.

Professor H. D. Kay has continued his work on plasma phosphatase in bone

disease. It has been found that the large rise in plasma phosphatase found in osteitis deformans and osteitis fibrosa is not specific for these diseases, but is present in all cases of bone disease involving a large portion of the skeleton. In human rickets, in hyperparathyroidism and in hyperthyroidism to a less degree, the plasma phosphatase is markedly increased.

The optimum pH for this enzyme has been determined. It has been shown that Mg ions act as an activator for it, and also that young and growing animals have a rather higher average plasma value than adult animals.

Mr. H. D. Jenner and Professor Kay have made several attempts to purify phosphatase derived from the mucosa of beef and pig intestine; but without much real success as yet, though very active preparations have been obtained. It has been found that the activity resides mainly in the mucosa of the intestine, the submucosa being relatively inactive.

On dialysis enzyme solutions are almost, but not completely, inactivated. Much of this activity can be restored by the action of Mg ions (as had been previously shown by Erdtmann for kidney phosphatase). They have shown that Mg ions act equally well in the reactivation of purified bone and intestinal phosphatase, and have determined the optimal pM_g for bone phosphatase to be about 3.

The effect of Mg on the synthetic power of bone and intestinal phosphatase has been investigated, and it appears *not* to act as a coenzyme for synthesis.

Mr. H. D. Branion and Professor Kay have followed changes in the amount of phosphatase in the bone, intestine, kidney and blood plasma during the development of rickets in rats. In low phosphorus rickets in rats the plasma phosphatase seems definitely to be depressed.

Mr. H. D. Branion with Professors Taylor and Kay, in collaboration with the department of physiology, have produced hypervitaminosis D in dogs and have obtained evidence suggesting that the vitamin possibly exerts its effect on Ca metabolism by stimulation of the parathyroid gland. The symptoms of hypervitaminosis D in the dog are very similar to those of parathyroid overdosage. Vitamin D protects a partially parathyroidectomised animal from tetany. If the operation has been very thorough, and all traces of suspected parathyroid tissue have been removed, the protection is relatively small.

They find that, judging from the rate of calcification of the arteries, dogs are much more resistant to vitamin D overdosage than are rabbits.

Mr. H. D. Branion, Dr. E. J. King, Dr. T. F. Micholson and Professor H. D. Kay, in collaboration with the Banting medical research department, have studied the effect of hypervitaminosis D (oral administration of irradiated ergosterol) on the phosphatase of the blood and other tissues of rabbits. The phosphatase of the plasma appears to be diminished, as is also that of the bone, kidney and small intestine. The aorta calcified very rapidly, even in the young animal. Preliminary histological examinations of certain of the organs have been made, and calcification in aorta and kidney observed.

They have produced pathological symptoms in the rabbit, with relatively small quantities of vitamin D.

Professor A. M. Wynne, in the department of zymology, has conducted:

1. An investigation of acid production in fermentations brought about by various propionic acid bacteria.

2. A study of the amylase of clostridium acetobutylicum.

Mr. W. W. Johnston has investigated three problems relating to the metabolism of clostridium acetobutylicum.

(1) The mechanism by which added fatty acids are decomposed, with special attention to the effect of these acids on gas production during the fermentation of carbohydrate. In this connection a detailed study has been made of the rate and extent of the production of hydrogen and carbon dioxide in normal and acidified cultures.

(2) An examination of the carbon balance in normal and acidified cultures.

(3) The formation of formic acid during the fermentation; the fermentability of added formic acid and its salts.

Dr. R. D. Heard has carried out phosphorylation experiments with sugar-fermenting bacteria including butyric, propionic and lactic acid organisms and B. coli communis. Attempts were made to demonstrate the formation of hexosephosphates by the action of bacterial preparations and of bacteria in suspension on solutions of inorganic phosphate plus glucose or fructose.

Mr. Heard has also studied the influence of phosphates on the acetonebutyl alcohol fermentation under the following heads:

(*a*) The significance of added hexose phosphates in relation to the normal fermentation.

(*b*) Effects of added inorganic phosphate on the rate and course of the fermentation. Certain effects on the relative proportions of the intermediate acids formed have an interesting significance in the interpretation of the mechanism of the formation of the neutral end-products.

Mr. Heard has commenced an investigation into the nature of the organic phosphorus compounds present in the cells of clostridium acetobutylicum.

The researches of Mr. Johnston and Mr. Heard were conducted under the direction of Professor Wynne.

Biology, under direction of Professor B. A. Bensley

Invertebrate Zoology, Entomology: Professor E. M. Walker, studies on the anatomy of *Grylloblatta*, functional significance of certain head parts in insects. Supervision of Mr. F. P. Ide, ecological studies on *Ephemeroptera* with analysis of new species; Mr. L. C. Marston, studies on the labium of insects. Miss N. H. Ford, upper temperature limits in various *Orthoptera*, studies on *Grylloblatta*.

Histology: Professor W. H. Piersol, influence of freezing on tissue. Part supervision of Mr. F. J. Richardson, abnormal development in fowls.

Marine Biology: Professor A. G. Huntsman, supervision of Mr. R. B. Kerr, scale studies on Atlantic salmon; Miss V. M. Davidson, seasonal periodicity in diatoms; Dr. R. H. McGonigle, diseases of trout and salmon fry; Miss A. Berkeley, post-embryonic development of British Columbia shrimps; Mr. A. W. Needler, life-history studies on haddock; Miss A. Alley, protozoan disease of herring; Mr. R. A. McKenzie, temperature changes and drying in refrigerated fish.

Mammalian Anatomy: Professor W. H. T. Baillie, comparative studies on muscles of chimpanzee and other mammals. Supervision of special work, Dr J. H. Beasley, anatomy of chimpanzee.

Embryology: Professor A. F. Coventry, factors involved in development of coiling in alimentary canal. Supervision of Miss K. K. Holman, embryological studies on whitefish.

Comparative Neurology: Professor E. H. Craigie, investigation of the brain of *Apteryx*, corpus striatum in birds, vascularity of hippocampal cortex in albino rat and Norway rat. Supervision of Mr. Carl G. Smith, age changes in cerebral cortex.

Genetics: Professor J. W. MacArthur, investigation of sex-linked and autosomal characters in the fowl, effects of X-rays on sex ratio and mutations, linkage in tomato, heredity of human aphalangy. Supervision of Mr. Disbrowe, genetic studies on the honey-bee; Mr. Joyce, analysis of Guernsey cattle pedigrees; Mr. Smith, malpositions in fowls; Mr. Snyder, hatchability in fowls; Miss Englebrecht, seeding failures in alfalfa.

Ichthyology: Professor J. R. Dymond, British Columbia trout, Lake Ontario fishes, ciscoes and herrings of western Canada.

Limnobiology: Professor W. J. Harkness, preliminary survey of Lake Nipissing and results. Supervision of Mr. F. P. Ide, invertebrates of waters of Algonquin park; Mr. W. E. Ricker, fish distribution in Lake Nipissing, ecological relations of trout; Mr. J. Oughton, bottom fauna of Lake Nipissing; Mr. A. L. Tester, spawning habits and factors in development of bass; Mr. E. Pentland, physico-chemical determinations of Lake Nipissing; Mr. M. Fallis, relations of animal distribution to aquatic plants; Miss M. Cronk, studies on the bottom organisms of Shakespeare island, Lake Nipigon.

Royal Ontario Museum of Zoology: Under supervision of Professor Dymond, several pieces of investigation relating to faunistic distribution were carried out during the year and papers published thereon, including: Professor Dymond, mammals (3), Mr. L. L. Snyder, birds and mammals (8), Mr. T. B. Kurata, spiders (1), Mr. E. B. Logier, amphibians and reptiles (2), Mr. J. L. Baillie, birds and mammals (3), together with biographical study of William Couper, pioneer Canadian naturalist.

Botany, under direction of Professor R. B. Thomson

I. *Phanerogamic Botany, Genetics and Plant Breeding*
Under direction of Professor R. B. Thomson.

A. Anatomy and Experimental Morphology

Allin, A. E.—Tangential pitting in the wood of fossil and living vascular plants.

Astrom, Miss I. E.—Sporeling and adult structure of *Selaginella.*

Dickson, G. H.—Phases of sterility in the apple.

Hart, N. C.—The origin of resin canals in the wood of the pines.

LaRush, Mrs. F.—Studies on pollen grains in connection with hay fever.

Bannan, M. W.—A study of medullary rays in conifers.

Reed, Miss E. R. L.—The anatomy of the seedling of araucarians.

Taylor, T. M. C.—Thesis offered in partial fulfilment of Ph.D. degree "On the sporeling organisation and the cladorhize development of the adult plant in *Equisetum arvense* L."
Additional work on the fundamental organisation of the vascular cryptogams.

Thomson, R. B. and Allin, A. E.—Devonian plants from Gaspé peninsula.

Thomson, R. B., Sifton, H. B., and Bannan, M. W.—Wound reactions of *Sequoia*, *Abies*, *Laris* and *Pinus.* The determination of the season of maximum response to wounding. The stimulation of resin production by chemical means.

Wright, Miss J. G.—(1) A continuation of the work in the pit-closing membrane in the higher gymnosperms. (2) A study of the life-history of one of the cycads of western Australia.

B. Taxonomy

Allin, A. E.—Collection from the Georgian Bay region.

Krotkov, P.—Collection in Ontario, (2) revision of the herbarium material.

Taylor, T. M. C.—Collection in western Canada.

Watson, W. R.—Collection and identification of Ontario flora (Temagami, Bruce peninsula, Algonquin park, and local).

C. Genetics

Strong, W. J.—Genetical studies of the cucumber. A paper is almost ready for publication.

II. *Cryptogamic Botany, Mycology and Forest Pathology*
Under the direction of Professor H. S. Jackson.
The last two projects are conducted in co-operation with the forestry branch of the Provincial Department of Lands and Forests.

Cain, R. F.—A monographic study of Ontario sordariaceae.

Hunter, Miss L. M.—(1) Life-history studies on species of *Melampsora* and *Melampsoridium*. (2) Comparative studies of the pycnia of rusts.

Jackson, H. S.—(1) A study of the rusts of South America based on the Holway collections. This is a taxonomic study dealing with a large collection of rusts made by Professor E. W. D. Holway, of the University of Minnesota, in South America. Publication is in the form of a series of papers in mycologia. Two numbers have already been printed and a third is submitted. (See Mycologia 18, 141-162; 19, 51-65, 1927). (2) A study of the rusts of Panama and Costa Rica. (3) Studies in the cytology of short-cycled rusts. (4) The mycological flora of Ontario and the Temagami forest reserve.

Jackson, H. S. and Thompson, G. E.—Studies of certain forest tree rusts.

Lehmann, A. J. V.—A study of the nuclear phenomena of the germination of certain species of *Lepto-Puccinia* and *Uromyces*.

Nobles, Miss M. K.—A study of the mycological flora of virgin soils.

Pady, S. M.—(Holder of a bursary from the National Research Council.) A study of the development of the teliospores of certain forest tree rusts.

Thompson, G. E.—A study of the diseases of poplar and birch with special reference to a mycosporella disease of poplar.

III. *Plant Pathology*

Under the direction of Professor D. L. Bailey. The first three projects are being carried on in co-operation with the Horticultural Experiment Station at Vineland, Ont.; the fourth and fifth with the Dominion plant pathological laboratory at St. Catharines, and the last with the aid of a National Research Council bursary.

Bailey, D. L.—Continuation of the investigations on dead arm of the grape in the Niagara peninsula with the emphasis still on control measures, and varietal resistance studies.

Willison, R. S.—The results of the wound gum formation studies which have been carried on for the past three years were presented in the thesis offered by Mr. Willison in June in partial fulfilment of the requirements for the Ph.D. degree. This will shortly be published.

Montserin, B. G.—(in co-operation with Mr. W. A. Ross, Dominion entomologist, Vineland station). A careful study is being made of the biology of the apple scab fungus and experimental spraying is also being carried on in an effort to find a satisfactory spray system which will be effective and still not cause the spray-injury which results from the present standard spray mixtures.

Koch, L. W.—Investigations on the spur blight of raspberries were continued this year at the St. Catharines laboratory of plant pathology. The results were embodied in a thesis which Mr. Koch presented this spring and which, it is expected, will shortly appear in *Phytopathology*.

Hildebrand, A. A.—An intensive study is being made of the etiology of two root rots of ginseng which are proving a limiting factor in ginseng production in south-western Ontario. A number of organisms have been isolated from diseased plants and the pathogenicity of the more likely of these is being tested.

Ledingham, C. A.—A technique has been developed designed especially to isolate phycomycetous parasites from root hairs of wheat seedlings. He is studying the relation of these parasites to the development of various types of cereal root rots.

IV. *Plant Ecology and Seed Studies*

Under the direction of Professor H. B. Sifton.

Sifton, H. B.—A study of gymnosperm seed-coats.

Hamly, D. H.—Microchemical, histological and experimental investigation of legume seed-coats with reference to their permeability to water.

Foulds, F. E.—The effect of pre-soaking on the germination of beans.

Cormack, R. G. H.—The effect of various external conditions on the growth of root hairs.

McCugan, Miss J. E.—The seed-coats of the genus *Brassica*.

V. *Plant Physiology*

Under the direction of Professor G. H. Duff.

Duff, G. H.—The effect of sulphur dioxide upon vegetation. Much of the year has been spent on field and experimental investigations of this question under a project of the National Research Council. The work is still in progress.

Forward, Miss D. F.—Wheat rust parasitism and its relation to the physiology of the host.

This project involves both pathology and physiology and is jointly supervised by the professors concerned. The Ontario Research Foundation is contributing valuable support.

Krotkov, G.—(1) Carbon metabolism in *in vitro* cultures of plants. (2) Carbohydrate metabolism in the leaves of wheat.

Chemistry, under direction of Professor W. Lash Miller

Twenty-two students were engaged in research last winter under the direction of professors of this department.

Of these one was awarded the degree of doctor of philosophy, *viz.*: Miss Helen Stantial ("Chemical conditions which bring about the formation of ascospores in saccharomyces cerevisiae," Prof. W. Lash Miller); and ten were awarded the degree of master of arts, *viz.*: Messrs. H. M. Barrett, W. E. Beare, C. E. Coke, H. C. Graham, H. A. McPhail, G. A. McVicar, J. E. Maconochie, A. M. J. Mueller, L. F. Somerville, and Mrs. A. G. Sleep.

The following were the subjects of research:

H. M. Barrett, B.A.—The adsorption of water-vapour by solids.

W. G. Beare, B.A.:—Composition of the vapours of methyl-alcohol solutions of hexane.

C. E. Coke, M.S.:—Solubilities of gases in emulsions.

Miss E. V. Eastcott, Ph.D.:—Purification of Bios II.

L. Farber:—Rate of the reaction between benzyl-benzoate and ethyl alcohol.

H. C. Graham, B.A.:—Effect of potassium salts on the yeast crop.

A. D. Grieve, B.A.:—Electrical conductivity of high temperature gases in the electric furnace.

D. G. Haines:—A 200-watt thermionic oscillator free from harmonics.

V. G. Lilly, M.A.:—Electrolysis of sodium hydroxide solutions with alternating current.

H. A. McPhail, B.A.—Separation of the amino-acids from casein.

G. A. McVicar, B.A.:—Partial pressures of the vapours of volatile liquids in presence of inert gases.

J. E. Maconochie, B.A.:—The rate of reproduction of yeast in various culture media.

Prof. W. H. Martin:—The Raman-effect in solutions of acetone and pyridine.

A. Matenko:—Effect of acid concentration on the P.D. of lead accumulators.

Prof. W. Lash Miller:—The third constituent of Wildiers' bios.
A. J. Mueller, B.A.—Solubility relations in the system methyl-alcohol, normal-butyl-alcohol, water, up to the critical temperatures.
F. F. Musgrave, B.A.:—Bios II from yeast.
J. R. Musgrave, B.A.:—Equilibrium between artificial zeolites and aqueous solutions.
Mrs. A. G. Sleep, B.A.:—The rate of saponification of certain esters by sodium hydroxide in absolute alcohol.
D. J. Smith, B.Sc.:—Heating and cooling curves in the system calcium-chloride, sodium-chloride, magnesium-chloride.
L. F. Somerville, B.A.:—The rate of the reaction between phenyl-benzoate and ethyl-alcohol in presence of small quantities of calcium ethylate, ammonia, or sulphuric acid.
Miss H. Stantial, M.A.:—The sporulation of yeast.
D. F. Stedman, Ph.D.:—Conductivity of electric furnace gases.
R. E. Whiting:—The photo-expansion of wet and dry bromine.

Food Chemistry, under direction of Professor C. C. Benson

The research work carried on in this department during the session of 1929-1930 has followed the same lines as that of previous years, and two of the graduate students registered in the department have been granted the degree of master of arts this spring.

Students have been studying the metabolism of pigeons in connection with the use of these birds as test animals for vitamin efficiency. They have been measuring the gaseous exchanges and noting effects of variations in dietary constituents. Information has been gained as to normal energy requirements and as to more satisfactory conditions for synthetic feeding.

Studies of the nature of the pectin bodies have also been continued with special reference to the nature of fruit jellies.

Geology, under direction of Professor W. A. Parks

1. Professor A. P. Coleman (professor emeritus) was engaged in studying the glacial deposits of the Bruce peninsula, and in the vicinity of Toronto; also at various points in South Africa. A work on the pleistocene history of North America is being prepared.

2. Professor Parks spent most of the summer in an examination of the oil fields of Gaspé. Professor Moore was engaged throughout the summer in the Sudbury field and Professor MacLean in northern Quebec.

During the winter the following investigations were made in the laboratories.

3. *By Professor W. A. Parks*
   Preparation of a report on the oil and gas resources of Quebec.
4. *Under direction of Professor W. A. Parks*
   (*a*) Dr. M. A. Fritz—Description of new species of palaeozoic fossils.
   (*b*) H. C. Laird—Charts of the Lockport and Onondaga formations of Ontario (assisted by grant from National Research Council).
   (*c*) C. G. Clarke—Devonian stromatoporoids.
5. *By Professor E. S. Moore*
   Geological structure of the southwest portion of the Sudbury basin.
6. *Under direction of Professor E. S. Moore*
   D. R. Derry—On the origin of tin deposits.
   G. H. Charlewood—On the nature of granite batholiths.
   G. S. MacKenzie—On the nature and origin of carbonates in mineral veins.
   J. D. Wright—On the geology of an area around Claw Lake, Ont.

7. *By Professor A. MacLean*
   Geology of Cadillac and Bousquet townships, Quebec.
8. *Under direction of Professor A. MacLean*
   Leslie V. Bell—Rock alteration in certain gold areas of Ontario.

Household Science, under direction of Professor A. L. Laird

During the session 1929-1930 two students have been engaged in graduate work in the department of household science under the joint direction of Professors Laird and Willard.

Miss M. D. Smith has continued her work on the iron and nitrogen content of beef teas, and has shown that teas prepared by the cold process contain a somewhat higher per cent. of coagulable protein than those prepared by heating to a temperature of not over 45°C.

Miss E. M. Turnbull has investigated the total nitrogen content and also some of the mineral constituents of a group of Indian foodstuffs—grains, pulses, nuts, etc. From her analyses it would seem possible to very greatly improve the Indian diet in its calcium and iron content by the substitution of ragi for a part of the rice of the diet. This change would also somewhat increase the per cent. of protein and of phosphorus.

Medical Research, under direction of Dr. F. G. Banting

Dr. F. G. Banting, assisted by Miss S. Gairns, has conducted experiments on the antitryptic properties of blood serum. With the co-operation of the department of paediatrics an investigation was made on the aetiology of intestinal intoxication of infants.

Dr. G. C. Cameron has continued the study of experimental silicosis and the elimination of silica. A study has been begun on the effect of dye stuffs on induced infection in rabbits.

Advantage was taken of an opportunity to study the incidence of bacteria in the blood stream of healthy people. Dental students volunteered for this study. In this work Dr. Cameron obtained the co-operation of Dr. G. N. Murphy of the dental faculty and Dr. C. A. Rae of the department of otolaryngology.

Further experiments upon the therapeutic effect of colloidal arsenic on transplantable tumors of mice were carried out by Dr. Cameron with the assistance of Dr. B. Deacon of the department of physics.

Dr. E. J. King has evolved a method for the determination of very small quantities of silica in urine. In collaboration with Miss M. Crawford, a titrometric method for the determination of silica in plant tissues was also worked out.

Dr. King has made a study of the enzymatic hydrolysis of lecithin by extracts of various animal tissues.

In collaboration with Mr. E. Hall, a study has been made of the pathological and biochemical changes in fowls which had been fed excess amounts of vitamin D.

With the collaboration of the department of biochemistry, a study has been made of the changes in the phosphatase content of the tissues of rabbits, following the administration of excessive doses of irradiated ergosterol.

Dr. N. R. Franks has investigated the production of lactic acid and hexosephosphates in the glycolysis of tumor tissue.

Dr. G. W. Ross, assisted by Miss Lang, has made a further study of cases of rheumatoid arthritis.

Medicine, under direction of Dr. Duncan Graham

A report of the investigation into the changes occurring in the colon in chronic arthritis before and after dietetic treatment has been published. It has been shown that the changes occurring in the colon are manifestations of malnutrition and antedate the development of arthritis. Under dietetic treatment the radiological appearance of the colon tends to become normal and, in the majority of patients, there is a coincident improvement in the arthritic condition.

The pigment metabolism in Addison's "pernicious" anaemia during the stages of relapse and remission and before and during liver treatment has been studied and a report will be published shortly.

A report of a study carried on in conjunction with the department of radiology on the rate of evacuation of various foods from the normal stomach has been published.

The relationship between changes in the number of blood platelets in the blood and the occurrence of petechial haemorrhages is being investigated.

The effect of upper respiratory tract infection upon the development and progress of lower respiratory tract infection is under investigation. This work is being carried on in conjunction with the department of oto-laryngology.

Mineralogy, under direction of Professor T. L. Walker

In the summer of 1929, Professor A. L. Parsons spent considerable time in field work in eastern Ontario collecting material for the study of the feldspar pegmatites. Some of the results of his studies were published during the year. Some time was devoted to the silver regions of northern Ontario. Apart from the value of the material obtained for study, many valuable specimens were added to the collections of the Royal Ontario Museum of Mineralogy.

Professor Ellis Thomson has continued his mineralographic studies of the ore minerals from the silver mines of Ontario.

Mr. W. A. Jones has completed his work on the petrography of the rocks in the vicinity of Killarney and also his studies of the xenoliths in the vicinity of Sudbury.

Mr. A. R. Graham's chemical examination of chromite, with a view to determining the extent to which this mineral carries diamonds, have been continued. His results up to the present tend to throw doubt on the general distribution of diamonds in this mineral.

Professor T. L. Walker, while attending the meetings of the International Geological Congress at Pretoria, obtained valuable series of minerals and rocks especially from the mines of gold, platinum, diamonds, chromite and asbestos. An extensive series of rocks from the Bushveld intrusive will prove of great value for comparative study of some Canadian mineral regions. During the winter laboratory studies were continued, results of some of which are published in the University of Toronto Studies, geological series.

All the above investigations have been greatly aided by the chemical work of Mr. M. C. Haller, research assistant in this department.

It is hoped that equipment for the study of minerals by means of X-rays may be provided at an early date. In the meantime this important field is closed to our department, although in many centres mineralogists are with great advantage employing this latest method of investigation.

Obstetrics and Gynaecology, under direction of Professor W. B. Hendry

Research work in the toxaemias of pregnancy is still being carried on by Dr. Van Wyck in co-operation with the department of pathological chemistry with very promising results.

The studies in puerperal infection, which have been made by Dr. Dafoe, in co-operation with the Connaught laboratories, have produced eminently satisfactory results and have had a decidedly beneficial effect on the maternal mortality rate at the Burnside.

The anthropological survey carried on by Dr. Goodwin, in co-operation with the department of anatomy, gives such promise that the Banting Foundation has granted sufficient funds to carry on this work for at least another year.

Paediatrics, under direction of Professor Alan Brown

During the past year the research laboratories have been actively engaged in continuing work instituted during 1928-29. Investigations of the cause of acute intestinal intoxication are being continued. Mrs. Johnston, assisted by Miss Kaake, has continued the epidemiological, bacteriological and serological investigations of a large series of cases of acute intestinal intoxication in infants. This disturbance, which reaches epidemic form in urban centres amongst patients belonging largely to the dispensary social group, appears to have its origination in the intestinal tract, and not in the upper respiratory system which was formerly held to be the primary site of the infection. Bacteria of the colon-typhoid-dysentery group seem to have aetiological importance, which has been demonstrated by the presence of immune substances in the patients' blood. Pathogenic bacteria, which have not been previously reported from Canada, have been isolated and identified. It is hoped that an immune serum of therapeutic value may be evolved for the treatment of infections instituted by these microorganisms.

Dr. Drake, assisted by Miss Herbert, is studying profound changes in the acid base balance of infants with acute intestinal intoxication, and the information obtained is being applied in the treatment of these patients. Last fall Dr. Banting, assisted by Miss MacKenzie, spent a considerable amount of time in an investigation of a disturbance of the trypsin secretion in the pancreas of these infants.

Dr. Snelling, the resident physician of the Hospital for Sick Children, has completed observations on the sugar tolerance curves in these infants. Dr. Ormiston, one of the hospital internes, has found a marked disturbance of the capillary blood-flow, and is planning to continue his investigations when these cases again become available in the next few months.

Dr. Gladys Boyd is continuing her studies on diabetes and nephritis in children.

An investigation is being carried out by Dr. Chant Robertson and Dr. J. R. Ross of the resistance of rats to infection under different feeding and hygienic conditions, and these studies are giving results which should be of practical value in the care and feeding of infants and children.

Dr. Pearl Summerfeldt is investigating anaemias as found in hospital patients. She is also investigating the various factors which effect the cure of anaemias produced in animals.

The investigation of the value of the high frequency machine, presented to the department by the General Electric Company, is under way. This investigation will require a matter of many months and probably years.

A considerable amount of time and energy have been devoted to a study of vitamin and mineral elements in foods. The trustees of the Hospital for Sick Children have very generously donated and renovated the two large rooms for the purpose of housing a rat colony for this type of work. These rooms are now being equipped and the department is in a position to carry on extensive investigations of this nature.

Pathological Chemistry, under direction of Professor V. J. Harding

A special study has been made this year on the effect of hypertonic saline solutions in pregnancy. Dr. D. L. Selby and Miss O. Moberly have collected a large amount of data on the presence of sugar in normal urine and on the glycosurias of pregnancy with very interesting results. Miss Moberly has also made a study of galactose tolerance in normal women. Dr. L. J. Harris has made an interesting comparison of the effect of urea on experimental water intoxication as contrasted with its clinical results in epilepsy. Dr. T. F. Nicholson has conducted a most painstaking investigation on the effect of hypertonic urea solutions on the acid base balance of the blood plasma.

Pathology and Bacteriology, under direction of Professor O. Klotz

During the session of 1929-30 there have been, in addition to the researches carried out by members of the regular staff, five postgraduate students devoting themselves to special investigations.

Dr. R. M. Price has continued her fellowship under the National Research Council of Canada, and has carried on researches upon the incidence of bovine tuberculosis in man, and the manner in which these infections are acquired. Valuable data, which have heretofore not been available upon this problem in Canada, have been obtained and published.

Dr. Wray Lloyd has devoted his attention to the study of the myocardial changes arising in yellow fever. In these studies, Dr. Lloyd has devoted particular attention to the changes which arise in the atrio-ventricular muscle bundle, which appear to be related to the alteration in the pulse rate seen in this disease.

Dr. T. H. Belt, working under a grant from the Rockefeller Foundation, has carried out some detailed studies upon the lesions arising in the liver and spleen in yellow fever. He has also devoted a considerable study to the evidence of the regeneration of the damaged tissues in liver and kidney in this same disease. He has shown that complete regeneration occurs after recovery.

Dr. A. Magalhaes (Brazil), a special student under the International Health Division of the Rockefeller Foundation, devoted his attention to a study of the minute alterations in the kidney which arise during the acute stages of yellow fever. The demonstration of intranuclear inclusions is of interest.

Dr. Kenneth G. Gray (associated with the department of medicine) carried on studies on bone-marrow changes arising in blood diseases.

Professor Klotz has continued his studies on yellow fever with particular reference to the qualitative changes associated with virus infections. He has also undertaken a study of chronic pulmonary lesions in relation to their influence on the respiratory function.

Professor Holman is continuing his studies on the fundamental factors relating fatigue to susceptibility of infection.

Professor Robinson has studied the factors which play a part in the property of filtration exhibited by the spleen of various animals. This property is quite complex, varying in different forms with the architecture of the spleen, but apparently dependent upon the electric charge possessed by the cells.

Dr. Phillip Greey is carrying out some interesting studies on electrophoresis as applied to differentiation of certain bacteria. Dr. G. Lyman Duff—Fatty changes of intima of aorta; their distribution and tissues involved. Dr. F. M. Greig—Necrosis of liver—particularly in reference to arsenic poisoning. Dr. J. E. Gundy—Periarteritis nodosa with report of two cases.

Pharmacology, under direction of Professor V. E. Henderson

In the field of research, Dr. Lucas has continued his work on cyclopropane, which appears to be a new anaesthetic of high value.

Dr. Lucas and Professor Henderson, in conjunction with Dr. W. E. Brown and Allan S. Kennedy, have carried on a study of nitrous oxide anaesthesia in animals and the effects of co-administration of carbon dioxide with this mixture. The paper containing the results is now in press. Further observations made during the preparation of this paper have led to a series of experiments designed to show why such a profound anaexemia exists both in aminals and in man during the period of anaesthesia with 90% and 80% nitrous oxide. This work is not yet completed but will be of undoubted value.

Dr. McCollum has been engaged on a prolonged study of the distribution of chloroform within the body in order to ascertain whether or not such an examination will serve to substantiate the Meyer-Overton theory of narcosis.

Dr. Johnston has been engaged in a continuation of studies on the mechanisms of the gut.

Professor Henderson and Dr. Kennedy have made an extensive examination of the literature of ethyl chloride anaesthesia and have carefully checked the experimental results of other workers with methods which enable the results to be more readily transferred than others to human anaesthesia.

Physics, under direction of Professor J. C. McLennan

During the session 1929-30 there were 32 graduate students in attendance. Of these 11 were formally enrolled for graduate instruction for the degree of master of arts and 16 for the degree of doctor of philosophy. During the session 5 students in the department received the degree of master of arts and 3 the degree of doctor of philosophy.

As heretofore, advanced courses of lectures on theoretical physics were given by the regular members of the professoriate of the department, by several of the research associates and by a number of professors from other universities, who were specially invited by our university to do so. Among the latter were Professor Goudsmit of the University of Michigan, who delivered three lectures early in the Michaelmas term on "*The fine structure imparted to spectral lines by the spins of atomic nuclei.*" Another, Professor Cabannes, of the University of Montpellier, France, gave us three lectures towards the end of November on: (1) *The molecular scattering of light by gases;* (2) *The experimental laws of the Raman effect*, and (3) *The degradation of light frequency by molecular scattering.* During January and February a symposium was held in the department on theoretical physics. Professor W. F. G. Swann, director, the Bartol Research Foundation of the Franklin Institute, gave the opening lecture, which was a popular one, on *Some philosophical aspects of recent advances in modern physics.* Professor J. H. Van Vleck, of the University of Wisconsin, gave a course of fifteen lectures on *Wave mechanics*, and Professor Svein Rosseland of the University of Oslo gave two lectures, the one on *Stellar hydrodynamics*, the *Variable star problem*, and the other on *Atomic theory and the interpretation of stellar spectra.* Professor Otto Oldenberg, of Göttingen, delivered three lectures—(1) *On the relation between band spectra and dissociation energy*; (2) *The Principle of microscopic reversibility*, and (3) *On active nitrogen.* Six lectures were delivered by Dr. E. S. Akeley, dealing with recent work by Lanczos and Fraenkel on the relation of *The Dirac and Maxwell theories.* The symposium was brought to a close with three lectures given by Dr. A. E. Ruark, of the Mellon Institute, Pittsburg, on *The physics of atomic nuclei*, and one by him on *Applications of radioactivity to geology.* All these lectures were attended by graduate students and by the staff in physics as well as by members of the staffs of other departments.

A list of the researches carried out and directed by the different members of the staff during the year is given in detail below. Some of these researches, it will be seen, were concerned with investigations on spectroscopic subjects, on the

structure of crystals, on colloidal solutions, and on the electrical conductivity in metals at low temperatures. Other researches had to do with the duration of metastable atomic states, with the properties of liquid films, with the heating effects of short radio waves, and with molecular synthesis and dissociation stimulated by irradiation with high-speed electrons. Some researches that were of special interest to geophysicists were concerned with the location of ore bodies by the use of specially designed types of physical apparatus. Some rather important investigations were carried out on the spectrum of the aurora and on the superconductivity exhibited by ruthenium and other metals at low temperatures. The experimental station erected at Inglewood for determining the helium content of the natural gases in that district has been dismantled and the equipment brought back to the physical laboratory.

It gives me much pleasure to make mention of the gift of a very fine marble bust of Sir Isaac Newton made to the director by Mr. Sigmund Samuel and afterwards donated by the director to the physical laboratory. An acknowledgment should also be recorded of a gift generously made to the laboratory by Messrs. Evershed and Vignoles, consisting of an Evershed bridge meg resistance tester and an Evershed meg tester.

In the statement which follows a few notes are given on each of the researches carried out in the department during the session.

A. *Researches directed by Professor J. C. McLennan.*

1. *On the Raman effect with liquid ortho and para hydrogen.* By J. C. McLennan, F.R.S., H. W. Smith, B.A., and J. O. Wilhelm, M.A.

Experiments are described in which five Raman spectral lines were obtained with liquid hydrogen. One of them was a positive or anti-Stokes line. From a study of the intensities of these spectral lines it was found that in liquid hydrogen the molecules of the ortho type pass over gradually with the lapse of time into those of the para type.

2. *The electrical conductivity of some alloys containing chiefly bismuth or one of the elements allied to it.* By J. C. McLennan, F.R.S., J. F. Allen, B.A., and J. O. Wilhelm, M.A.

This investigation is described in two papers. It was found that a Pb-Sb alloy became superconducting at 6.6°K, a Pb-Bi alloy at 8.8°K, Rose's metal and Newton's metal at 8.5°K, and Woods' metal at 8.2°K, a lead arsenic alloy at 8.5°K. The alloy Bi_5Tl_3 also became superconducting at 6.4°K, and in addition to the above it was found that lead sulphide became conducting at 4.2°K. It was shown that bismuth appeared to possess the property of raising the transition point of any superconducting metal with which it was alloyed.

3. *Temperature-resistance observations on some non-superconducting metals, compounds, and alloys.* By J. C. McLennan, F.R.S., J. F. Allen, B.A., and J. O. Wilhelm, M.A.

This paper gives an account of observations on the resistances of some 24 metals, compounds, and alloys that were not found to be superconducting at any temperature down to 1.8°K.

4. *On the electrical conductivity of ruthenium.* By J. C. McLennan, F.R.S., J. F. Allen, B.A., and J. O. Wilhelm, M.A.

Observations made on pure ruthenium showed that it became superconducting at 2.04°K.

5. *On the Raman effect with liquid methane.* By J. C. McLennan, F.R.S., H. D. Smith, B.A., and J. O. Wilhelm, M.A.

In addition to the Raman line λ 2903 cm^{-1} discovered by Daure, the authors found another that originated in a frequency characteristic of the Methane

molecule of 3071 cm^{-1}. The authors also found a Raman band situated near λ 4600Å that appeared to consist of four components.

6. *The absorption spectrum of oxygen.* By J. C. McLennan, F.R.S., H. D. Smith, B.A., and J. O. Wilhelm, M.A.

The absorption spectrum of liquid oxygen was investigated, and eight bands were observed besides those known from previous work by others. A comparison is made with the absorption spectrum of gaseous oxygen at various pressures. The results indicate that there is no appreciable difference in the states of oxygen molecules in the gas and in the liquid form.

7. *The absorption of light by liquid and gaseous xenon.* By J. C. McLennan, F.R.S., and R. Turnbull, M.A.

In the study of the absorption of the resonance line $\lambda = 1469$ Å by gaseous xenon, a broadening and shifting towards the red were noted with increase of pressure. These changes were followed from the case of the gas under low pressure up to that of xenon in the liquid state. The bearing of the results on the subject of intrinsic pressure in liquids is pointed out.

8. *Crystal structure of some elements.* By J. C. McLennan, F.R.S., and R. W. McKay, B.A.

The crystal structure of lanthanum, uranium, bromine, and hydrogen have been investigated by X-ray methods. Lanthanum has been found to have a hexagonal structure. The work on the other elements has not yet been completed but the results of measurements on their plane spacings will be given.

9. *Heating effects with high frequency fields.* By J. C. McLennan, F.R.S., and A. C. Burton, M.A.

These effects have been studied under a variety of conditions with frequencies from 6,000 to 30,000 kilocycles for various solutions. The heating is dependent on the specific conductivity and dielectric constant, and rises to a maximum for a conductivity that is determined by the frequency and the dielectric constant according to a simple theory. The influence of "spin-effect" and of shape, size, and position of the dielectric in the field are experimentally and theoretically examined, with some reference to electro-therapy.

10. *Fine structure in thallium spectra.* By J. C. McLennan, F.R.S., A. B. McLay, Ph.D., and M. F. Crawford, M.A.

Accurate values for fine structure intervals of terms of thallium II have been obtained from measurements of the wave-lengths photographed with a three-metre grating. Fine structure multiplets were also observed for a few wave-lengths of neutral and of doubly ionised atoms. The results are discussed in the light of recent theories.

11. *Spqrk spectra of bismuth, Bi II and Bi III.* By J. C. McLennan, F.R.S., A. B. McLay, Ph.D., and M. F. Crawford, M.A.

Spectral terms that arise from many of the more stable electronic configurations of singly and doubly ionised bismuth atoms have been evaluated. Partially resolved fine structure multiplets of Bi II and Bi III were observed and measured. The patterns are consistent with the accepted view that the spin moment of momentum of the bismuth nucleus is $4\frac{1}{2} \cdot h/2\pi$.

12. *The fine structure of lines in the visible region of the spectrum of Tl III.* By J. C. McLennan, F.R.S., and Miss E. J. Allin, M.A.

The structure of the lines of the second spark spectrum of thallium which appear in the visible region have been investigated by means of a glass transmission echelon grating of 45 plates. Good agreement was found between the experimental results and the theoretical ones if the spin momen-

tum of the thallium nucleus was taken as $\frac{1}{2} \cdot h/2\pi$. Lines in the same region of the spark spectrum of indium are now being studied.

13. *Interferometer measurements of wave-lengths in the infra-red region of iron and xenon.* By J. C. McLennan, F.R.S., and Florence M. Quinlan, M.A.

For the purpose of obtaining standard wave-lengths in the infra-red region measurements were made of sixteen lines of iron and twelve lines of xenon with a Fabry and Perot etalon interferometer. Shifts of the xenon wave-lengths towards the violet as the xenon discharge tube aged were observed. Reasons for the shifts are put forward and their bearing on the suitability of the lines for standards discussed.

14. *The dielectric constants of some liquefied gases.* By J. C. McLennan, F.R.S., J. O. Wilhelm, M.A., and R. C. Jacobsen.

The dielectric constant for nitrogen, argon, methane, and nitrous oxide in the liquid state have been measured. The capacity at a frequency of about six times 10^6 of an evacuated test condenser was compared with its capacity when filled with the respective liquids. The temperatures at which measurements were made lay in the range between a few degrees above the boiling point for atmospheric pressure and the triple point for each of the substances studied.

15. *Zeeman effect for fine structure components of thallium spectral lines.* By J. C. McLennan, F.R.S., and A. M. I. A. W. Durnford, M.A.

Zeeman patterns for seventeen lines of the thallium spark spectra thallium II and III, were obtained, using a field of twenty-five thousand three hundred gauss. For several of the patterns a decrease of fifteen per cent. was employed to indicate the process of convergence. For thallium λ 5949 Å the ultimate convergence was observed for a field of 4000 gauss.

16. *A study of the absorption of the auroral green line λ 5577 by oxygen.* By J. C. McLennan, F.R.S., and E. K. Moles, B.A.

A small but measurable absorption of the auroral green line λ 5577 Å was observed in oxygen at high pressures. The absorption increased with pressure. Results of the investigation of the absorption in liquid oxygen and in ozone have also been obtained.

17. *Spectroscopy of the light of the night sky.* By J. C. McLennan, F.R.S., and H. J. C. Ireton, M.A.

An account is given of the development, construction, and optical details of a high-light power spectrograph suitable for the photography of the radiation of the moonless night sky or of the spectra of auroral displays. Results obtained with the instrument in England and in Canada are illustrated and described. Further possible improvements in the spectrograph are indicated and additional researches where it could be used with great advantage are suggested.

18. *On the dilatation of superconductors above and below their transition temperatures.* By Professor J. C. McLennan, F.R.S., J. F. Allen, B.A., and J. O. Wilhelm, M.A.

In this research the dilatation of lead, Rose's metal, and tin were investigated down to the lowest temperatures obtainable by us with liquid helium. With all three a shortening was observed that continued below the transition temperature.

19. *On the electrical conductivity of lead, tin and thallium alloys.* By Professor J. C. McLennan, F.R.S., J. F. Allen, B.A., and J. O. Wilhelm, M.A.

The superconductivity of twelve alloys was examined and the transition temperatures corresponding to them ranged from 4.1°K to 9°K.

20. *Chemical effects produced by irradiating methane, oxygen, CO_3 and other gases with high-speed electrons.* By Professor J. C. McLennan, F.R.S., and Mr. J. V. S. Glass, B.A.

With methane the products of the irradiation were hydrogen, ethane. With oxygen ozone was produced, and with CO_2 a fine brownish deposit was obtained that readily combined with water and that appeared to be a sub-oxide of carbon.

21. *Duration of metastable states.* By J. M. Anderson, M.A.

Experimental work on the duration of metastable states at ordinary and low temperatures has been carried out. The lines λ 7635 A and λ 7948 A in argon ending in the $^3P_2$ and $^3P_0$ states respectively have been selected for study.

B. *Researches directed by Professor E. F. Burton*

22. *Equilibrium phenomena of coagulation of colloids.* By E. F. Burton and Miss M. Annetts, M.A.

A series of preliminary experiments on the phenomena of coagulation of sol[s] of arsenious sulphide and gum mastic by the measurement of light intensity both for scattered light and transmitted light, led to indications of change on the addition of small traces of a coagulating electrolyte, which would escape rougher methods of observation. This led to a series of experiments of coagulation with various kinds of sol[s] which point to a definite state of equilibrium between the amount of solid remaining in suspension and the constitution of the surrounding media.

23. *Test of new moisture determination apparatus.* By E. F. Burton and A. Pitt.

Work on this method was continued under a grant from the National Research Council of Ottawa. Successful experiments have been carried out in a further test on grain and quite a complete investigation on the test of moisture in wood.

24. *Test of new moisture determination apparatus with textiles.*

Professor Burton has been assisting in the direction of a research on textiles carried out by Mr. R. H. Hawkins on the measurement of the moisture content of various textiles.

C *Research directed by Professor J. Satterly*

25. Work has been continued on the ridge produced at the junction of the surfaces of two liquids having different surface tensions. The four ridges—the Reynolds, the tube, the disc, and the Burdon ridge—have been carefully studied and a correlation attempted between the properties of the ridge and the physical properties of the liquids and in particular the interfacial surface tension.

D. *Research directed by Professor L. Gilchrist*

26. Geophysical investigations were made at the Abana mine in north-western Quebec in collaboration with Mr. H. G. Watson of McGill University and Mr. E. V. Potter of the United States Bureau of Mines.

Investigations were also carried out at the Falconbridge mine and the Errington mine in the Sudbury district, northern Ontario, in collaboration with Professor A. S. Eve, Professor D. A. Keys, and Mr. H. G. Watson, of McGill University, and Dr. F. W. Lee, Mr. J. Wallace Joyce of the United States Bureau of Mines. The investigations were carried out with the aid of instruments from the department of physics, University of Toronto, from the department of physics, McGill University, from the United States Bureau of Mines, and from the Geological Survey of Canada.

The results of the investigations have been presented for publication to the Geological Survey of Canada.

E. *Research directed by Professor H. A. McTaggart*

27. Research has been carried on during the year on the physical properties of a number of organic compounds in monomolecular films on water, and on the Brownian movement observed in thin oil films on water. Mr. B. G. Whitmore assisted in these researches.

Physiology, under direction of Professor C. H. Best

During the last year the scope of the research work as well as of the teaching carried out in this department has been considerably extended.

The rearrangement of courses has enabled Professor N. B. Taylor to give more time to research than in previous years, and with Mr. S. J. Rosenthal and Mr. J. W. A. Greig he has been able to establish several facts which reveal the similarity between the symptoms of intestinal obstruction and of over-dosage with the parathyroid hormone. Professor Taylor has also studied the effects of guanidine intoxication in cats and of large doses of ergosterol in dogs.

Professor Laurence Irving, with Mr. H. C. Foster, has continued his researches on changes in muscle and blood carbon dioxide in eviscerated animals. Certain aspects of tissue respiration in mammals during periods of suppression of pulmonary ventilation have also been studied.

Dr. Paul O'Sullivan is investigating the immediate effects of high temperatures on blood concentration.

Dr. E. Fidlar's research on the effects of light and darkness on the metabolism of animals has led him into a further investigation of the constituents of air.

Dr. Lois Fraser is continuing her work on capillary circulation.

Dr. Samuel Soskin and Mr. M. T. de Pencier have investigated the alleged beneficial effect of liver-feeding on diabetes, and have been unable to substantiate the clinical reports by observations on diabetic animals.

Dr. C. M. Jephcott has made a good start on the problem of insulin distribution in the body, and the effects of various diets. As a preliminary to this research a great deal of investigation into methods of extraction and assay of insulin is necessary.

Mr. H. A. Procter has extended his observations on changes in muscle glycogen as a result of training, and has secured interesting results in an investigation of the nature of the substance in pancreatic juice which inactivates insulin.

Mrs. R. C. Partridge, of the department of physiological hygiene, and Mr. D. Y. Solandt have succeeded in recording action currents from the optic nerve of the frog and from the optic nerves of certain mammals. This investigation, which is the first of this type carried out in this university, gives promise of many other interesting results.

Dr. D. L. Maclean and Miss Jessie Ridout, of the department of physiological hygiene, are studying the effects of thyroid feeding on dogs, with the intention of investigating the phenomenon of "thyroid storm."

Mr. J. H. Hershey, assisted by a grant from the Banting Foundation, has established the very significant fact that some constituent of "so-called" chemically pure lecithin or lecithin itself is responsible for the alleviation of the severe symptoms which develop in diabetic dogs receiving only lean meat, sugar, and insulin.

Psychology, under direction of Professor E. A. Bott

Eighteen students pursued investigations under members of the staff in this department during the past session.

The degree of doctor of philosophy was conferred upon Mr. W. B. Mumford, M.A., for a thesis entitled, "An experiment in the education and social adjustment of native African peoples," supervised under a committee consisting of Professors Bott, Sandiford and McIlwraith.

The degree of master of arts was awarded to nine students, six with grade B and three with grade C. The authors and subjects of these theses were:

Miss M. A. Davis—Evaluation of the criteria used for selecting a good foster home.

Miss G. H. Gordon—Adjustment of two-year-old children in the nursery school situation.

R. S. Jaques—Evaluation of tests of musical capacity.

Mrs. F. L. Johnson—A study of distraction in pre-school children.

Miss R. Lewis—A study in the training of children of very low mentality in elimination control.

Miss I. H. McBride—Evaluation of individual methods in education.

Mrs. M. C. Ringland—A study of tics in pre-school children.

Miss A. Starr—Emotional episodes in nursery school children.

L. D. Whisler—Interest in advertisements: its determinants and relation to conviction, familiarity and memorability.

Radiology, under direction of Dr. G. E. Richards

One piece of work undertaken during the year was of peculiar satisfaction in view of the great difficulty of obtaining accuracy in gall-bladder examinations in previous years. This was a detailed study conducted by Dr. Dickson and Dr. C. B. Parker of the surgical staff into the accuracy of the radiological method of examination of the gall-bladder following the oral administration of iodeikon. This method has now been in use for several years and in this study it was important to determine not only the actual degree of accuracy but the relative accuracy of the oral administration as compared with the intra-venous. The results are extremely instructive. Out of 104 cases reported upon, 93.4 per cent. were correct in detail, while in three cases the findings at operation were controversial and either report would have been equally correct. With the improvements which have taken place during the past year it is felt that this method of examination can be made well-nigh infallible.

Further application of the uses of lipiodol in hollow organs of the body has proved to be of great value in the recognition of diseases of the nasal accessory sinuses, more especially the maxillary antra. By the injection of these sinuses with lipiodol followed by X-ray studies, the accuracy of the information obtained has been very greatly increased and promises to be almost as revolutionary in this field as iodeikon has proved to be in the gall-bladder.

Surgery, under direction of Professor W. E. Gallie

During the year several clinical investigations have been carried out which were reported at staff meetings. These include studies of the results obtained in the treatment of appendicitis, gastric and duodenal ulcer and gall-bladder disease. The great value of our system of clinical records was shown in these investigations and the weakness of our follow-up system disclosed. This defect in our methods will be gradually remedied by the establishment of other follow-up clinics in the out-patient department.

Several interesting clinical researches have been conducted in the wards and operating rooms. Dr. Shenstone and Dr. James have been investigating the possibilities of lobectomy in the treatment of bronchiectasis and have achieved

some remarkable results: Dr. Gordon Murray has been observing the influence of the modern treatment of diabetes on the surgery of that disease; Dr. D. E. Robertson has been trying out the effect of ramisection on intestinal movements in Hirschsprung's disease; and Dr. R. I. Harris has been studying the effect of changes in the peripheral circulation on the growth of the lower extremities. These researches are all of practical importance and may lead to valuable additions to our knowledge.

In the laboratories some important experimental studies are going on. Dr. J. H. Couch has succeeded in producing chronic duodenal ulcer in animals and is now engaged in studying the most certain way of relieving it. Dr. Stuart Gordon, the incoming fellow, has been making very beautiful preparations to illustrate the blood and lymph circulations in the thyroid gland. Dr. Gordon Murray has studied the histological effect of injuries to the head and neck of the femur. Dr. R. I. Harris is supplementing his clinical researches by an experimental investigation of the effect of lumbar sympathectomy on the growth of the limbs in young animals. Dr. Janes and Dr. F. I. Lewis are engaged in an attempt to produce bronchiectasis in the hope that by so doing they may find means of preventing the disease or of curing it when once established.

Therapeutics, under direction of Professor R. D. Rudolf

The work on visceral pain that Dr. Arthur G. Smith, as part-time fellow, was doing last year was completed during this session and the results were presented before the association of American Physicians early in May and will appear shortly in the *American Journal of the Medical Sciences.*

REPORT OF THE COMMITTEE FOR EXPERIMENTAL RESEARCH IN MEDICINE

(*Dr. A. Primrose, Convener*)

The committee on experimental research begs to report regarding the work done for the session 1929-30, as follows:

A great deal of very important experimental work has been carried on for the purpose of elucidating problems which have arisen in connection with clinical work in the wards of the Toronto General Hospital.

It is noteworthy that the work carried on under the supervision of this committee is almost entirely accomplished by the younger men on the staff. The funds available for this committee have therefore been of the greatest value in providing opportunities for research by these younger men. The following is a list of the experimental work which has been carried on.

Dr. Shouldice: Bowel obstruction and portal vein experiments.
Dr. Drake: Dehydration.
Dr. K. Gray for Professor Graham: Bone marrow experiments.
Dr. R. I. Harris: Nerve experiments.
Dr. L. Harris for Professor Harding: Water intoxication.
Dr. Nicholson for Professor Harding: Blood experiments with urea.
Dr. Murray: Experiments on head of femur.
Dr. Couch: Ulcer experiments.
Dr. McFarlane: Experiments on pylorus.
Dr. Gordon: Experiments on thyroid gland.
Dr. Grieg for Dr. Klotz: Injections with arsenic.
Dr. Belt for Dr. Klotz: Brain experiments.
Dr. K. McKenzie: Brain experiments.

Dr. Janes: Experiments on lung.
Dr. Price: Experiments on tuberculosis.
Dr. Klotz: Experiments class work.
Dr. P. Gray for Dr. Klotz: Experiments on abscess.
Dr. Wharton for Dr. Klotz: Injection of material.
Dr. Silverthorne: Experiments with diphtheria toxin.

The magnitude of the work may be further understood when it is stated that there were 435 autopsies conducted and 1,500 specimens studied under the microscope.

SCHOOL OF ENGINEERING RESEARCH
FACULTY OF APPLIED SCIENCE AND ENGINEERING

During the past year bulletin No. 8 of the School of Engineering Research appeared, containing twenty-four papers from seven departments in this faculty. There has been a large demand for the separate papers of this bulletin from engineers and research workers in widely scattered parts of the world. These requests, as well as the favourable comments from those well qualified to pass judgment in the various fields of work of the school, have been very gratifying.

Upon consideration of means for furthering the activities and enhancing the value of the School of Engineering Research as a research organisation, the attention is at once drawn to the close association of this organisation with the graduate school of the university. Many of the research assistants employed in the school proceed simultaneously to the degree M.A.Sc. Recently a number of applications has been received from graduates who have wished to proceed to the degree Ph.D. in this faculty while carrying on research work under the auspices of the School of Engineering Research. The existing regulations respecting major and minor options for the degree Ph.D. in the graduate school make no suitable provision and take no cognisance of the special needs of the graduates of this faculty, and as a consequence these men have been obliged to go to other Canadian universities and to the universities of the United States, in order to pursue their studies looking forward to this degree.

The following considerations make it apparent that the number of such applications will probably be considerably augmented in the near future:

(1) There is a widespread belief in various sections of the community that research problems of major importance having to do with our raw materials, industrial processes, and with engineering design, should be attacked and solved in this faculty. This can be accomplished only with the help of graduates of exceptional ability, working continuously for several years as research assistants. It is increasingly difficult to secure such men, unless they be permitted to proceed simultaneously to the degree Ph.D.

(2) The demand for research men in the industries and government research laboratories is increasing; and in the scale of salaries recently announced by the largest employer of research workers in this country, the possession of the degree Ph.D. carries with it very considerable monetary advantage.

Thus, if this work is to be undertaken in this faculty (and there can be no doubt as to the wisdom of doing so), and if this faculty is to make the larger contribution which it is desirous of making to the activities of the graduate school, the regulations should be so amended that the graduates of all departments of the faculty of Applied Science and Engineering may be enabled to proceed to the degree Ph.D. by taking major and minor subjects, either wholly or largely, within this faculty.

It is perhaps unnecessary to point out that a problem which has to do with raw materials, or industrial processes, or engineering design, usually resolves itself into a series of problems in pure physics or pure chemistry. The fact that

a utilitarian end is frankly in view does not minimise the purely scientific value of such work and does not diminish the suitability of such investigations as a fulfilment on the research side of the requirements for the degree Ph.D.

Department of Civil Engineering

Under the direction of Professor L. B. Stewart

Investigations of applications of the catenary curve to base measurement have been in progress.

Under the direction of Professor C. R. Young (with W. B. Dunbar)

Pressure on deeply buried sewers. Readings have been continued during the year on the fourteen (14) pressure cells in place on the deep sewers constructed in tunnel in the new North Toronto system. This work will continue as long as the cells show any increase of pressure. The report will be prepared for publication when the observations are complete.

(*With W. B. Dunbar*)—Lateral support of steel columns and struts.—Special equipment and apparatus have been developed and constructed during the year with which the lighter columns of a considerable series have been tested in our 200-ton machine. The method developed for carrying on the investigation has been found to take account of the many irregularities and complications attending column performance, and the information that we are obtaining with respect to the force required to hold a steel column or strut laterally should be very helpful to the designer. The work will proceed during the coming year.

(*With K. B. Jackson*)—Restraint of welded beams and girders.—The work that had been projected by the late Professor Peter Gillespie in connection with this study was taken over by the present investigators. A series of specimens was planned, and, after the invention and construction of a special extensometer, the work has been carried on with very encouraging results. A method has been devised for rating the degree of restraint obtained by a welded end connection, and the means of determining whether the additional expense required to furnish a certain degree of end restraint is offset by a larger saving in main material has been established. Work will continue during the coming year in connection with this investigation.

Department of Mining Engineering

Under the direction of Professor H. E. T. Haultain (with W. E. Johnston, Nipissing Research Fellow)

Work on the fundamentals of the cyanide process has been continued. This involved an examination of the behaviour of the very fine particles of ore, for which special novel apparatus was designed. Some further work was also done on the fundamentals of fine grinding.

Under the direction of Professor F. C. Dyer (with H. L. McClelland)

A research has been in progress on the refining of fine graphite for use in the electrical industries.

Under the direction of Professor J. T. King (with S. E. Wolfe)

A further study has been made of the effects of cupel media on cupellation losses.

Department of Mechanical Engineering

Under the direction of Professor Angus

An investigation of the relative merits of various types of fuel oil on the operation and output of a solid injection, cold starting, Diesel engine has been completed and the results will very shortly be available.

(*With C. G. Heard*)—Tests were made in the wind tunnel to determine the effect of a coating of ice on transmission cables. Wooden models, representing the transmission line coated with ice from a winter storm, were set up in the tunnel and the forces produced, at different wind velocities, were measured.

(*With R. Taylor*)—A study was begun on the losses at entry to and exit from pipe lines passing through surge tanks. A glass-sided model has been made and set up and water is passed through it at various velocities and the losses are being measured. This problem is of much interest in connection with pipe-line losses and some results will soon be available.

(*With R. Taylor and C. G. Heard*)—The latest type of water turbine for low heads has been secured and set up in the testing flume. This Kaplan wheel represents the latest practice in all power development and the investigation of it in the laboratory promises to yield information for users as well as material that will enable a satisfactory theory of the machine to be built up.

Under the direction of Professor E. A. Allcut

The influence of mixture strength on the power and economy of gasoline engines has been further studied with new and improved testing apparatus on an eight-cylinder Marmon engine and a six-cylinder Buick engine respectively. The full-load tests are completed and the results are being analysed. Further tests will be made at light loads.

Improved apparatus has been installed for investigating heat transmission through the insulating materials used in building construction.

Department of Architecture

Under the direction of Professor E. R. Arthur

A survey of Western Ontario has been made in connection with a study which is in progress of the "Early Architecture of Ontario." The study of early Toronto houses is almost complete. It is suggested that when the plans for the new Royal Ontario Museum are being prepared, space might suitably be reserved for "Early Ontario Architecture." The nucleus for such an exhibit now exists in the department of architecture of the University of Toronto. The colonial section of the Metropolitan Museum of Fine Arts of New York is considered by some visitors to be the most interesting of the art treasures of this great collection.

Department of Chemical Engineering

Under the direction of Professor J. W. Bain (with J. M. Calman)

The investigation of ligno sulphonic acids occurring in the waste lignin of pulp mills has been continued, particularly with respect to the products formed by reaction with α and β naphthylamines.

Under the direction of Professor M. C. Boswell (with A. H. Boultbee)

The effect of conditions, particularly the presence of various catalysts, upon the rate of dissociation of methane, has been studied with a view to utilising waste natural gas as a commercial source of hydrogen. This study is still in progress.

(*With R. K. Iler*)—A study of the composition and constitution of platinum catalysts has been commenced with an improved apparatus in an endeavour to determine the factors influencing catalysis by platinum catalysts.

(*With G. P. Beal*)—Various possible methods have been devised and investigated for the recovery of sulphur dioxide from gases containing small percentages of it with a view to utilising waste gases of smelters as a commercial source for sulphur dioxide for chemical industry.

(*With J. H. Borland*)—An attempt has been made by a radical alteration of conditions to isolate products intermediate between cellulose and oxalic acid in the alkali fusion of cellulose. The reaction has proceeded in the manner anticipated and several products obtained, the exact composition of which will be investigated.

Under the direction of Professor E. G. R. Ardagh (with R. E. Richardson)

The investigation commenced a year ago of the effect of the conditions of precipitation upon the properties of the resultant barium sulphate, has been continued, particularly with respect to the characteristics of the crystals and to their capacity for adsorption.

Under the direction of Professor E. A. Smith (with A. R. Wallberg)

A study has been made of methods for the determination of moisture in peat.

Department of Electrical Engineering

Under the direction of Professor T. R. Rosebrugh

The research on the analytics of transmission calculations which has been in progress for several years has been completed and will be published in the near future in the Transactions of the American Institute of Electrical Engineers. Its purpose is to systematise calculations so as to provide for both algebraic and geometrical solutions of a general class of problems concerning electrical transmission of power in the steady state.

Under the direction of Professor H. W. Price (with C. K. Duff)

Frequency control—Two regulators, one each for automatic control of 25 and 60 cycles for our laboratory services, have been in routine operation since last October. They have been found very quick-acting, exact, and reliable. The investigations have been almost completed. Papers describing this work are in preparation.

Electric standard clock—Study of certain equations for rate errors disclosed the need for more information than is now available regarding that portion of pendulum maintenance consumed by steel suspension springs. Experimental studies of a group of springs gave some surprising results regarding hysteretic losses which are not yet understood. The work is proceeding.

REPORT ON RESEARCH IN THE FACULTY OF DENTISTRY

The following problems have been under investigation in the faculty of dentistry during the past session:

The use of the rectangular coordinate system in the study, teaching and practice of prosthetic dentistry, by R. G. Ellis.

Pyorrhea in horses and its relation to necrotic gingivitis in man, by G. N. Murphy.

Modern engineering practice applied to an improved ceramic furnace design, by Frank M. Lott.

Inflammation as a factor in the production of dental calculi, by E. M. Box.

An attempt to lower the fusing point of the present dental ceramic stains to increase their field of usefulness, by L. Roy Currie.

The neutralising power of resting and stimulated saliva, by Miss E. F. Trent.

Impressions for the semi-dentulous, by T. N. Scott.

The maxillary residual area, by H. M. Robb.

Classification of particular arrangement of teeth in relation to facial features, by Lloyd Davis.

Three research students, Drs. H. M. Corlett, W. P. Devins and Saul Simon were engaged upon studies in the subject of orthodontia.

(13) PUBLICATIONS

FACULTY OF ARTS

Department of Anthropology

McIlwraith, T. F. — *Canada: Anthropology* (Encyclopaedia Britannica, 14th edition, 1929, Vol. 4, pp. 701-704.)

Recent Publications Relating to Canada: Ethnology, Anthropology, and Archaeology. (The Canadian Historical Review, Vol. X, No. 4, December 1929, pp. 370-384.)

The Progress of Anthropology in Canada. (The Canadian Historical Review, Vol. XI, No. 2, June, 1930, pp. 132-150.)

Department of Archaeology

Iliffe, J. H.—*Sumerian Gold Statuette from Egypt at Toronto.* (Art and Archaeology, April, 1930, pp. 157-159, and 190.)

Review of A. W. Lawrence: Classical Sculpture. (American Journal of Archaeology, Oct.-Dec., 1929, pp. 582-584.)

Museums and their Use. (Dalhousie Review, April, 1930, pp. 92-98.)

Department of Astronomy

Chant, C. A.—*Die Wunder des Weltalls.* (Berlin: Julius Springer.) *Divy Vesmíru.* (Prague: Melantrich A. S.)

Young, R. K. and Mrs. V. Krotkov—*The Deterioration of Silver Mirrors with Age.* (Popular Astronomy, Vol. 38, pp. 99, 1929.)

Young, R. K.—*Tides and Seiches on Lake Huron.* (Journal of the Royal Astronomical Society of Canada, Vol. 23, pp. 445, 1929.)

The Building of a 19-inch Telescope. (Journal of R.A.S.C., Vol. 24, pp. 17, 1930.)

Department of Biology

Craigie, E. H.—*The vascularity of the cerebral cortex in a specimen of Apteryx.* (Anatomical Record, Vol. 43, pp. 209-214.)

The cerebral cortex of Apteryx. Evidence that the avian neocortex has been reduced from a multilaminar condition. (Anatomischer Anzeiger, Bd. 68, S. 97-105.)

Studies on the brain of the kiwi (Apteryx australis.) (Journal of Comparative Neurology, Vol. 49, pp. 223-357.)

Dymond, J. R.—*The trout of British Columbia.* (Trans. Amer. Fish. Soc. 1928, pp. 71-77.)

The northern limit of the white-tailed deer in Ontario. (Can. Field-Nat. 44: 96.)

Some little brown bats from Ontario. (Can. Field-Nat. 43:137.)

Dymond, J. R., Hart, J. L., and Pritchard, A. L.—*The fishes of the Canadian waters of Lake Ontario.* (Univ. Toronto Studies, Biol. Ser., Pub. Ont. Fish. Research Lab., No. 37.)

Dymond, J. R., and Pritchard, A. L.—*Some ciscoes or lake herrings of Western Canada.* (Contr. Can. Biol. & Fish. N.S., Vol. V, pp. 467-474.)

Cross, E. C., and Dymond, J. R.—*The mammals of Ontario.* (Handbook No. 1, Royal Ontario Museum of Zoology.)

Harkness, W. J. K., and Ricker, William E.—*A preliminary study of some trout waters of Ontario.* (Trans. Amer. Fisheries Society, 1929.)

Huntsman, A. G.—*Arctic ice on our eastern coast.* (Bulletin Biological Board of Canada, No. 13, Toronto, 1930.)

Piersol, W. H.—*Abstracts.* (Biological Abstracts, Vol. III, Nos. 9-11; Vol. IV, Nos. 1, 3.)

Pathological polyspermy in the eggs of Ambystoma jeffersonianum. (Transactions of the Royal Canadian Institute, Vol. XVII, part I, pp. 57-75.)

Department of Chemistry

Ferguson, J. B., Beare, W. G., and McVicar, G.A.—*The determination of vapour and liquid compositions in binary systems; II, acetone-water at 25°C.* (The Journal of Physical Chemistry, 34, 1310-18, 1930.)

W. Lash Miller—*Bios.* (Journal of Chemical Education, 7, 257-267 1930).

J. B. Ferguson—*The electrochemical behaviour of glass.* (American Ceramic February, 1930.)

Department of Classics

Cochrane, Charles Norris—*Thucydides and the science of history*, pp. 184+indices. (Oxford University Press, August, 1929.)

in collaboration—*Honour classics in the University of Toronto, pp. 68.* (University of Toronto Press, 1929.)

Grube, G. M. A.—*The God of Plato.* (Canadian Journal of Religious Thought, June, 1929.)

The logic and language of the Hippias major. (Classical Philology, October, 1929.)

The sense of taste in Timaeus 65B-66E. (Classical Philology, January, 1930.)

Norwood, Gilbert—*Greek tragedy.* (Methuen.) Second edition.

The "Babylonians" of Aristophanes. (Classical Philology, Jan., 1930.)

The earliest prose work of Athens. (Classical Journal, Feb., 1930.)

Robertson, J. C.—*Christ and Greek thought.* (Canadian Journal of Religious Thought, March-April, 1930.)

Department of French

Ford, H. E., and Hicks, R. K.—*A new French reader.* (J. M. Dent & Sons in Canada and England, Henry Holt in the United States.)

Green, F. C.—*Introductory essay to the Everyman edition of the plays of Molière.* (Dent & Son, London.)

The art of Marcel Proust. (Toronto Saturday Night, Nov., 1929.)

Reviews on Boylesve, Casanova, Gide, Dumas, etc. (Toronto Saturday Night.)

Poirier, M.—*Les histoires d'Animaux; un genre littèraire canadien.* (Figaro, July 2, 1929.)

DEPARTMENT OF GEOLOGY

Coleman, A. P.—*Long range correlation of varves.* (Journal of Geology, Vol. XXXVII, 1929.)

Report on sedimentation—glacial features of Bruce peninsula. The age of the earth. (Nature, 1930.)

Coleman, A. P., with Walker, T. L. and Moore, E. S.—*The Sudbury nickel intrusive.* (University of Toronto Studies, Geological Series, No. 28.)

Derry, D. R.—*The age and relationships of intrusions in Maisonville township, Ontario.* (Transactions of the Royal Canadian Institute, Vol. XVII, part 1, July, 1929.)

Tin-bearing pegmatites in eastern Manitoba. (Economic Geology, Vol. XXV, No. 2, March-April, 1930.)

Fritz, Miss M. A.—*Two new species of fossils from the Palaeozoic of Ontario.* (The Transactions of the Royal Canadian Institute, Toronto.)

Moore, E. S.—*Keewatin-Timiskaming boundary.* (Bulletin, Geological Society of America, Vol. 40, pp. 547-556, 1929.)

Keweenawan olivine diabases of the Canadian Shield. (Royal Society of Canada, Transactions, Third Series, Vol. XXIII, Section IV, pp. 39-45, 1929.)

Geological structure of the southwest portion of the Sudbury basin. (Canadian Mining and Metallurgical Bulletin, March, 1930.)

Ore deposits near the north shore of Lake Huron. (Ontario Department of Mines, Annual Report, Vol. 38, Part VII, 1929.)

The mineral resources of Canada. (Pacific Affairs, published by the Institute of Pacific Relations, No. 11, 1929.)

Parks, W. A.—*Oil and gas resources of the Province of Quebec.* (Quebec Bureau of Mines, report for 1929.)

The dinosaurs of Alberta. (The Book of Canada, British Medical Association, 1930.)

DEPARTMENT OF GERMAN

Fairley, B.—*Nietzche.* (Queen's Quarterly, spring, 1930.)

Needler, G. H., and Lang, A. E.—*The German reader (new H.S. German reader.)* (Toronto, The Ryerson Press.)

DEPARTMENT OF HISTORY

Glazebrook, G. P. de T.—*The peace treaties of 1919-1920.* (Queen's Quarterly, Vol. XXXVI, No. 4.)

Representation by the Act of Union of 1840. (Canadian Historical Review, Vol. X, No. 3.)

Locke, G. H.—*English history in the Reading with a Purpose series.* (American Library Association, Chicago, 1930.)

Brown, G. W.—*The St. Lawrence waterway.* (Two articles, Willison's Monthly, July and August, 1929.)

St. Lawrence waterways project. (Nelson's Loose Leaf Encyclopaedia.)

The St. Lawrence deepening scheme. (The London *Times*, Imperial and Foreign Trade and Engineering supplement; Canada: Power, Transport, and Mining number, November 30, 1929.)

Brown, G. W., and Glazebrook, G. de T.—*The tourist traffic in Canada.* (Round Table, September, 1929.)

Martin, C.—*Nova Scotian and Canadian reformers.* (Presidential address, Section II, Royal Society of Canada, pp. 16. Transactions, Third Series, Volume XXIII, Section II, 1929.)

Reviews. (Canadian Historical Review, etc.)

Sir Edmund Head and Canadian Confederation, 1851-1858. (Presidential address of the Canadian Historical Association, report, pp. 5-14.)

Martin, C., with Doughty, A. G.—*The Kelsey papers.* (Ottawa, Public Archives of Canada and Public Record Office of Northern Ireland, lxxxiii, 128.)

Martin, C., with Wrong, G. M., and Sage, W. N.—*The story of Canada.* (Ryerson Press, XII, 377.) (Authorised by the Department of Education for Manitoba.)

Rothwell, H.—*France in 1260: a map contributed to Cambridge Medieval History, Vol. VI.* (Cambridge University Press, 1929.)

Department of Italian and Spanish

Cano, J. with Goggio, E.—*Two Spanish plays, edited with introduction, notes, exercises and vocabulary.* (Henry Holt and Company, New York, 1930.)

Goggio, E.—*Italy and the American War of Independence.* (The Romanic Review, No. 1, Jan. to March, 1929.)

Cooper's bravo in Italy. (The Romanic Review, Vol. XX, No. 3, July to Sept., 1929.)

Review of novelle Italiane moderne by John R. Reinhard and Michele de Filippis. (Italica, Vol. VI, No. 2, Sept., 1929.)

The case for Italian. (The University of Toronto Monthly, December, 1929.)

The history of modern language teaching at Harvard University from its origins to 1850. (The Harvard Graduates Magazine, Vol. XXXVIII, No. 151, March, 1930.)

Washington Irving and Italy. (The Romanic Review, Vol. XX, No. 1, Jan. to March, 1930.)

Italians in early American history. (Italian Historical Society, N.Y., June, 1930.)

Six easy Italian plays. Edited with notes, direct-method exercises and vocabulary. (D. C. Heath and Company, Boston, Mass., June, 1930.)

Goggio, E. with Cano, J.—*Two Spanish plays. Edited with introduction, notes, direct-method exercises and vocabulary.* (Henry Holt and Company, New York, June, 1930.)

Shaw, J. E.—*Bibliography of Italian studies in America.* (Italica, Vol. VI, Nos. 3 and 4; Vol. VII, Nos. 1 and 2.)

American bibliography for 1929. Italian. (Publications of the Modern Language Association of America. Vol. XLV, 1.)

Essays on the Vita Nuova. (Princeton University Press and Les Presses Universitaires de France, Paris, 1929.) (Elliott Monographs, No. 25.)

Department of Law

Kennedy, W. P. M.—*Statutes, treaties and documents of the Canadian Constitution.* (1930: Clarendon Press.)

The law and custom of reservation, 1549-1661. (1929: Cambridge.)

The law of the taxing-power in Canada. (1930: Toronto.)

The constitutional law of the British Empire. (1929: Ottawa.)

The immunity of instrumentalities in British Federal law. (1930: Cornell Law Press.)

Confidential report for the Secretary of State for Canada on the workings of the law of nationality. (1930: Ottawa.)

The laws of the Province of Quebec, 1767-69. (1930: Ottawa.)
Cambridge history of the British Empire. (Assistant Editor: Vol. VI, 1930: Cambridge.)
Theories of law and the constitutional law of the British Empire. (Proceedings of the Canadian Bar Association for 1929.)
Law and custom in the Canadian Constitution. (The Round Table, December 1929, pp. 143 ff.)
The workings of Canadian constitutional law, 1867-1921. (Cambridge History of the British Empire, Vol. VI, chapter XXIX.)
The law of divorce and separation of aliens in France. (Canadian Bar Review, Vol. VIII, pp. 84 ff.)
MacKenzie, N. A. M.—*Re Incampe.* (Canadian Bar Review, Vol. VII, pp. 55 ff. and 343 ff.)
Hot pursuit: The freedom of the seas. (Ibid., pp. 407 ff.)
The Jay treaty of 1794. (Ibid, pp. 431 and 577 ff.)
The King v. Boutilier. (Ibid, pp. 736 ff.)
Rex v. Syliboy. (Ibid, pp. 561 ff.)
Cases and other material on international law. (Ibid, pp. 739 ff.)
A handbook of international law. (Ibid, pp. 741 ff.)
An internationa law digest. (Ibid, Vol. VIII, pp. 82 ff.)
Constitutional developments in the British commonwealth. (Ibid, pp. 213 ff.)
Recent literature on Imperial constitutional law. (American Journal of International Law, April, 1930.)
The present juridical status of the British dominions in international law. (Canadian Historical Review, December, 1929.)
Procedure in the "I'm Alone" case. (Round Table, No. 78, pp. 393 ff.)
Disarmament. (Canadian Defence Quarterly, Vol. VII, pp. 29, ff.)
The freedom of the seas. (The Canadian Nation, Vol. II, pp 5 ff.)
Canada and the Pan-American Union. (The Latin-American Review, Vol. I.)
The freedom of the seas. (Queen's Quarterly, Vol. XXXVI, pp. 420 ff.)
The "I'm Alone" case. (The Canadian Forum, Vol. IX, pp. 267 ff.)
The Canadian Institute of International Affairs. (Ibid, pp. 339 ff.)
International Affairs. (Ibid, pp. 392 ff., Vol. X, pp. 174 ff.)

Department of Mathematics

Beatty, S.—*Note on a certain surface.* (Trans. Roy. Soc. Can., Vol. 23, Sec. III, pp. 307-309.)
Stevenson, A. F. C.—*Periodic orbits of a rod about a Newtonian centre of force.* (Trans. Roy. Soc. Can., Vol. 23, Sec. III, pp. 169-185.)

Department of Mineralogy

Jones, W. A.—*The petrography of the rocks in the vicinity of Killarney, Ontario.* (University of Toronto Studies, Geological Series.)
A study of certain xenoliths occurring in gabbro at Sudbury, Ontario. (University of Toronto Studies, Geological Series.)
Parsons, A. L.—*Iridescent colour in peristerite.* (American Mineralogist, Vol. XV, pp. 85-97.)
Pyroxene and scapolite from Templeton township, Quebec. (University of Toronto Studies, Geological Series.)
A chemical and optical study of amphibole. (University of Toronto Studies, Geological Series.)

The lattice dimensions of natrolite from Wasson's Bluff, Nova Scotia. (University of Toronto Studies, Geological Series.)

The lattice dimensions of heulandite from Wasson's Bluff, Nova Scotia. (University of Toronto Studies, Geological Series.)

Thomson, E.—*Quantitative microscopic analysis and its application to mining problems.* (Bulletin Canadian Institute of Mining and Metallurgy, June, 1930.)

A mineralographic study of the Marcasite group. (University of Toronto Studies, Geological Series.)

Walker, T. L.—*Mineral association at the Marble Bay mine, Texada Island, B.C.* (University of Toronto Studies, Geological Series.)

Dalmatianite, the spotted greenstone from the Amulet mine, Noranda, Quebec. (University of Toronto Studies, Geological Series.)

Stephanite, argentite and silver, South Lorrain, Ontario. (University of Toronto Studies, Geological Series.)

Lodestone from Bon Accord, Transvaal. (University of Toronto Studies, Geological Series.)

Department of Oriental Languages

Meek, T. J.—*The co-ordinate adverbial clause in Hebrew.* (Journal of the American Oriental Society, XLIX, 156 ff.)

Some emendations in the Old Testament. (Journal of Biblical Literature, XLVIII, 162 ff.)

The Structure of Hebrew Poetry. (Journal of Religion, IX, 523-550.)

Some Old Testament problems in the light of recent archaeological research. (Canadian Journal of Religious Thought, VI, 374 ff.)

Taylor, W. R.—*Recent epigraphic discoveries in Palestine.* (Journal of the Palestine Oriental Society, 1930.)

A Palestinian description of the middle bronze age. (Journal of the Palestine Oriental Society, 1930.)

Are German universities republican? (The Toronto Star Weekly. Oct. 5, 1929.)

How the Germans have reached to their greatest war-novel. (The Toronto Star Weekly, Oct. 12, 1929.)

The cry of the Arab to England. (The Toronto Star Weekly, Jan. 25, 1930.)

The Palestinian troubles reviewed. (The New Outlook, Oct. 30, 1930.)

Why ancient cities became buried. (The New Outlook, Feb. 12, 1930.)

Department of Philosophy

Brett, G. S. *History of psychology.* (Encyclopaedia Britannica, Vol, 18, pp. 706-720.)

Review of La problème de la Sensation (Pradines). (Philosophical Review XXXIX, 3, 297-301.)

Associationism and "Act" psychology. (Psychologies of 1930, pp. 39-55, Clark University Press, 1930.)

Review of historical introduction to modern psychology (Murphy). (Journal of General Psychology, Vol. III, No. 1, 183-193.)

Castell, A.—*Plato as social reformer.* (International Journal of Ethics, Oct., 1929.)

MacCallum, H. R.—*Emotion and pattern in aesthetic experience.* (Monist, January, 1930.)

Tracy, F.—*Total depravity.* (The Canadian Journal of Religious Thought, Vol. VI, No. 4.)

Department of Physics

Anderson, J. M.—*Duration of metastable states.* (Canadian Journal of Research, 2, 13-25, 1930.)

Burton, E. F., and Pitt, A.—*A new method for the rapid estimation of moisture in wheat.* (Canadian Journal of Research, Vol. I, No. 2, July, 1929.)

Gilchrist, L.—*Investigations in the resistivity of the earth by the method of the central electrode and symmetrically placed multiple and electrodes.* (Proc. A.I.M.E., New York meeting, 1930.)

McLennan, J. C.—*On the Raman effect with liquid oxygen, nitrogen, and hydrogen.* (Trans. Far. Soc. No. 103, Vol. XXV, pt. 12, Dec., 1929.)

Ruthenium a superconductor. (Nature, Feb. 1, 1930.)

McLennan, J. C., Allen, J. F., and Wilhelm, J. O.—*The electrical conductivity of ruthenium.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

The electrical conductivity of some bismuth alloys at low temperatures. (Trans. Roy. Soc. Can., Vol. XXIV, Sec. III, 1930.)

Temperature resistance observations on some non-superconducting metals, compounds, and alloys. (Trans. Roy. Soc. Can., Vol. XXIV, Sec. III, 1930.)

McLennan, J. C., and Allin, Miss E. J.—*The fine structure of spectral lines.* (Phil. Mag., Vol. VIII, Oct., 1929.)

The fine structure of lines in the visible region of the spectrum of Tl III. (Trans. Roy. Soc. Can., Vol. XXIV, Sec. III, 1930.)

McLennan, J. C. and Cohen, Miss E.—*Some further investigations of the magnetic susceptibilities of single metallic crystals.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

McLennan, J. C., and Crawford, M. F.—*Low atomic energy levels for elements of the oxygen group.* (Nature, Dec. 6, 1929.)

McLennan, J. C., Howlett, L. E., and Wilhelm, J. O.—*On the electrical conductivity of certain metals at low temperatures.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

McLennan, J. C., Hunter, R. G., and McLeod, J. H.—*On the photoelectric effect with lead and mercury at low temperatures.* (Trans. Roy. Soc. Can., Vol. XXIV, Sec. III, 1930.)

McLennan, J. C., and Ireton, H. J. C.—*Spectroscopy of the light from the night sky.* (Can. Jour. of Research, April, 1930.)

McLennan, J. C., and McKay, R. W.—*The crystal structure of metallic lanthanum.* (Trans. Roy. Soc. Can., Vol. XXIV, Sec. III, 1930.)

McLennan, J. C., McLay, A. B., and Crawford, M. F.—*The spark spectrum of thallium, Tl II—Term analysis—Fine structure of lines.* (Proc. Roy. Soc. A, Vol. 125, 1929.)

The spark spectrum of thallium, Tl III. (Proc. Roy. Soc. A, Vol. 125,1929.)

McLennan, J. C., McLeod, J. H., and Wilhelm, J. O.—*On the scattering and absorption of electrons by lead in the superconducting state.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

McLennan, J. C., and Monkman, R. J.—*On the thermal expansion of zinc and cadmium crystals and on the crystal structure of erbium and niobium.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

McLennan, J. C., Perrin, M. W., and Ireton, H. J. C.—*The action of high speed cathode rays on acetylene.* (Proc. Roy. Soc. A, Vol. 125, 1929.)

McLennan, J. C., Smith, H. D., and Wilhelm, J. O.—*The Raman effect in liquid ortho and para hydrogen.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

Note on the Raman effect with liquid methane. (Trans. Roy. Soc. Can., Vol. XXIII, 1929.)

McTaggart, H. A.—*The Brownian movement in surface films.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

Satterly, John, and Turnbull, R.—*The ridge at the junction of clean and contaminated liquid surfaces.* (Trans. Roy. Soc. Can., Vol. XXIII, Sec. III, 1929.)

Department of Political Science

Brady, A.—*T. D'Arcy McGee.* (Encyclopedia of the Social Sciences, Vol. III, MacMillan Co., New York, 1930.)

Innis, H. A.—*Forest industries in Canada.* (Pacific Affairs, Sept., 1929.)

The Hudson Bay Railway. (Geographical Review, Jan., 1930.)

Select documents in Canadian economic history. (Toronto, 1929.)

The fur trade in Canada—An introduction to Canadian economic history. (New Haven, 1930.)

The teaching of economic history in Canada. (Contributions to Canadian Economics, Vol. II, 1930.)

A bibliography of recent publications in Canadian economics. (Contributions to Canadian Economics, Vol. II, 1930.)

Industrialism and settlement in western Canada. (Proceedings of the International Geographical Congress, July, 1928 (Cambridge, 1930) 369-376.)

Innis, H. A., and Smith, A. H.—*H. Laureys, Foreign trade of Canada.* (Toronto, 1928.)

Jackman, W. T.—*The stock market crash of 1929.* (Financial Post, Nov. 21, 1929.)

Railway improvements in service and operating results since the war. (Financial Post, Dec. 5, 1929.)

The railway situation as affected by the disorganisation of the grain trade. (Mail and Empire, Annual Financial and Commercial Number, Jan. 3, 1930.)

Urwick, E. J.—*The principle of reciprocity in social life and action.* (The Sir Charles Loch Triennial Lecture.) (The London Charity Organisation Society, England.)

FACULTY OF MEDICINE

Department of Anatomy

McMurrich, J. P.—*Greek medicine.* (Canadian Journal of Medicine and Surgery, Toronto, March, 1930.)

Department of anatomy, University of Toronto. (Methods and Problems of Medical Education. 16th series. The Rockefeller Foundation, New York, 1930.)

Sobotta, J., and Piersol, W. H.—*Atlas of human histology and microscopic anatomy, Vol. 2. Atlas.* (G. E. Stechert & Co., New York, plates 1-92, pp. 1-92.)

Department of Biochemistry

Barbour, A. D.—*Enzymatic hydrolysis of glycogen.* (J.B.C., Vol. LXXXV, No. 1, Dec., 1929.)

Borsook, H., MacFadyen, D. A., and Wasteneys, H.—*The substrate in peptic synthesis of protein.* (J. Gen. Physiol., Jan. 20, 1930, Vol. 13, No. 3, pp. 295-306.)

Branion, H. D.—*Some observations on the manufacture and vitamin content of cod liver and allied oils.* (Biological Board of Canada, Report No. 25, of the Experimental Stations.)

Finding a market for ling. (Canadian Fisherman, XVI, No. 11, Nov., 1929.)

Hunter, A., and Dauphinee, J. A.—*The arginase method of the determination of arginine and its use in the analysis of proteins.* (J.B.C., Vol. LXXV, No. 2, January, 1930.)

Kay, H. D.—*Plasma phosphatase in osteitis deformans and other diseases of bone.* (Brit. Jour. of Exper. Pathol., 1929, 10, 253. Aug., 1929.)

Blood phosphorus in health and disease. V. Note on the chemical composition of the reticulocyte. (Ibid., 1930.)

Plasma phosphatase in diseases of the bone. (Proc. Amer. Soc. of Biol. Chemists, March 28, 1930.)

Taylor, N. B., with Branion, H. D., and Kay, H. D.—*Some effect of excessive doses of irradiated ergosterol upon normal and parathyroidectomised dogs.* (Proc. Physiol. Soc., May 10, 1930.)

Wasteneys, H., and Borsook, H.—*The enzymatic synthesis of protein.* (Physiological Review, Vol. X, No. 1, January, 1930.)

Wynne, A. M.—*Effects of acids on the acetone-butyl alcohol fermentation.* (Canadian Chemistry and Metallurgy, Vol. 13, pp. 172, 1929.)

SCHOOL OF HYGIENE AND CONNAUGHT LABORATORIES

Best, C. H., and McHenry, E. W.—*The inactivation of histamine.* (Proc. XIII International Physiological Congress. Boston, Aug. 20, 1929. American Journal of Physiology, V. 90, Oct., 1929. Proc. Amer. Federation of Biol. Soc., Chicago, March 26, 1930.)

The vitamins. (Can. Public Health Journal, V. XXI, March, 1930. Can. Med. Assoc. Jour., Vol. XXII, April, 1930.)

Cameron, D. W.—*Meningococci and meningococci-like organisms.* (Can. Public Health Jour. V. XXI, June, 1930.)

Caulfeild, A. H. W., Brown, M. H., and Magner, W.—*A study of tissue tuberculo-allergy in skin plants.* (Amer. Jour. Tuber. V. XXI, Jan., 1930.)

Defries, R. D., and McKinnon, N. E.—*Vaccination and encephalitis.* (Can. Med. Assoc. Jour. V. XXI, Nov., 1929.)

Recent recommendations in vaccination. (Can. Public Health Jour. V. XX, Nov., 1929.)

Duff, D. C. B.—*A modification of the Orskov single-cell technic.* (Jour. Lab. and Clin. Med. V. XV, 1929.)

FitzGerald, J. G.—*Diphtheria toxoid in the prevention of diphtheria in Canada.* (Medical Bulletin, University of Toronto, V. X, March, 1930.)

Hannah, B.—*Hemorrhagic diphtheria.* (Can. Public Health Jour. V. XXI, Jan., 1930.)

McCullough, J. W. S.—*Control of tuberculosis.* (Canadian Health, July, 1930.)

Health in industry in Ontario. (Abitibi, Dec., 1929.)

An imperial tragedy. (Canadian Medical Assoc. Jour., Vol. XXII, pp. 403, 1930.)

Pasteurisation of milk. (Canadian Health, Jan., 1930.)

Sanitation of non-intoxicating beverages. (The Canadian Bottlers' Review, Jan., 1930.)

Series of six articles on "The Highway of Health." (Chatelaine, 1930.)

County health units. (Social Welfare, April, 1930.)

Ridout, J.—*The relation of diet to dental problems.* (Can. Public Health Jour. V. XXI, April, 1930.)

Scott, D. A., and Glaister, D.—*The action of saponin on antitoxin.* (Jour. Biol. Chem. V. LXXXIV, Oct., 1929.)
Scott, D. A., *et al—Observations on insulin.* (Biochem. Jour. V. XXXIII, 1929.)

Department of Medical Research

Banting, F. G., and Gairns, S.—*The antitryptic properties of blood serum.* (J. Am. Phys.)
King, E. J., Baumgartner, L., and Page, I. H.—*Glutathiongehalt des Blutes von Geisteskranken.* (Biochem. Zeit, 1930, Bd. 217, Heft 4-6.)
Die Abrahme des Knochen—phosphatase bei Überfutterung mil Bestrahltem Ergosterin. (Biochem. Zeit. 1930, Bd. 213, Heft 1-3.)
King, E. J.—*Die Enzymatische Splaltung des Lezithins.* (Biochem. Zeit.)
La Méthode Colorimetrique de Dosage du Silicium. (Bull. Soc. Chem. Biol.)
Lloyd, W. D.—*The form and function of the auriculo-ventricular bundle in the rabbit.* (Amer. J. of Anatomy, 1930, May.)
Ross, J. R.—*Preliminary report of the effect of treatment of transplantable tumors of albino mice and chickens by colloidal arsenic.* (Thesis presented for B.Sc. degree.)

Department of Medicine

Howland, G., Campbell, Maltby and Robinson—*Dysinsulism.* (Journal Amer. Med. Assn., Aug. 31, 1929.)
Howland, G.—*The value of occupational therapy in nervous disease.* (Occupational Therapy and Rehabilitation, Oct. 29.)
Loudon, J. D.—*Cerebrospinal syphilis.* (St. Michael's Hospital Medical Bulletin, Toronto, December, 1929.)
Wilson, M. J., Dickson, W. H., and Singleton, A. C.—*Rate of evacuation of various foods from the normal stomach.* (The Archives of Internal Medicine, December, 1929, Vol. 44, pp. 787-796.)

Department of Obstetrics and Gynaecology

Johnston, H. W.—*Severe hemorrhage from a ruptured lutein haemotoma.* (Journal of the Canadian Medical Association, February, 1930.)
Incontinence of urine following childbirth and its surgical treatment—(Surgery, Gynecology and Obstetric Journal.)

Department of Paediatrics

Brown, A.—*The etiology of acute intestinal intoxication in infants*—(Southern Medical Association Journal, Feb., 1930.)
Brown, A., with Courtney, A. M.—*The effect on digestion and assimilation of including bananas in the mixed diet of some children over five years of age.* (Canadian Medical Association Journal, 1929, XXI, 37-42.)
Calcium and phosphorus metabolism in some older children on mixed diet, including a large or a small quantity of milk. (Archives of Disease in Childhood. Vol. 5, No. 25, pp. 17.)
Salt content of woman's milk in some cases in which its use was not beneficial. (Archives of Disease in Childhood. Vol. 5, No. 25, pp. 28.)
The protein and non-protein fractions of some samples of woman's milk. (Archives of Disease in Childhood. Vol. 5, No. 25, pp. 36.)
Brown, A., with Snelling, C. E.—*An investigation of some of the fabrics used in the manufacture of underclothing.* (American Journal of Diseases of Children, January, 1930, Vol. 39, pp. 9-17.)

DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY

Belt, T. H.—*The pathology of silicosis of the lung.* (Can. Pub. Health Jour., 1929, October, p. 495.)

Cameron, G. C. and Irwin, D. A.—*Leptospira icterohaemorrhagiae. Occurrence in wild rats at Toronto.* (Can. Pub. Health Jour., 1929, August, pp. 583.)

Cannell, D. E.—*Congenital aneurysm of the interventricular septum.* (Amer. Jour. Path., 1930, vol. 6.)

Duff, G. L.—*Fatty changes of intima of aorta: their distribution and tissues involved.* (For B.Sc. (Med.) degree.)

Greey, P. H.—*Electrophoresis of bacteria.* (For B.Sc. (Med.) degree.)

Greig, F. M.—*Cyanosis of the New Born.* (Univ. of Toronto Med. Jour., 1929, 7, 56.)

Necrosis of liver—particularly in reference to arsenic poisoning. (For B.Sc. (Med.) degree.)

Gundy, J. E.—*Periarteritis nodosa with report of two cases.* (For B.Sc. (Med.) degree.)

Ham, A. W.—*A histological study of the early phases of bone repair.* (Jour. Bone & Joint Surg., 1930, Vol. 12.)

Holman, W. L.—*Fatigue and infection.* (Ann. Int. Med., 1929, 3, 259.)

Klotz, O.—*Necrosis of the liver in malaria.* (Amer. Jour. Trop. Med., 1929, 9, 241.)

Nodular fibrosis of the spleen associated with filaria loa. (Amer. Jour. Trop. Med., 1930, 10, 57.)

The growing importance of the diseases of middle life. (Can. Med. Assoc. Jour., 1930, 22, 34.)

Klotz, O., and Belt, T. H.—*The pathology of the liver in yellow fever.* (Amer. Jour. Trop. Med., 1930, Vol. 10.)

The pathology of the spleen in yellow fever. (Amer. Jour. Trop. Med., 1930, Vol. 10.)

The identity of the yellow fever lesions in Africa and America. (Amer. Jour. Hyg., 1930, Vol. 11.)

Klotz, O., and Lloyd, W.—*Sclerosis and occlusion of the coronary arteries.* (Trans. Assoc. Amer. Phys., 1930, Vol. 45.)

Lloyd, W.—*Action of calcium on the isolated human fetal heart.* (Jour. Pharm. & Exper. Thera., 1929, 36, 185.)

The form and function of the auriculo-ventricular bundle in the rabbit. (Amer. Jour. Anat., 1930, Vol. 45.)

Experimental heart block in the rabbit. (Heart, 1930, Vol. 15.)

The myocardium in yellow fever. (For Ph.D. degree.)

Magalbaes, A.—*Os rins na febre amarella.* Jornal dos Clinicos, 1930.)

The kidney in yellow fever. (Amer. Jour. Trop. Med., 1930, Vol. 10.)

Price, R. M.—*The isolation and cultivation of tubercle bacilli.* (Can. Pub. Health Jour., 1929, October.)

The differentiation of types of tubercle bacilli. (Can. Pub. Health Jour., 1930, March, 1.)

Bovine tuberculosis in its relation to infection in children. (Bull. Can. Tuber. Assoc. (Supplement) 1930, p. 6.)

Further studies upon the incidence of bovine infection in man. (Proceed. Assoc. Committee on Tuber., Nat. Res. Council, 1930.)

A preliminary report upon a study of the bacteriology and histo-pathology in "No-lesion reactor" cattle. (Proceed. Assoc. Committee on Tuber., Nat. Res. Council, 1930.)

The incidence of tuberculous infection in raw market milk in the Toronto district. (Proceed. Assoc. Committee on Tuber., Nat. Res. Council, 1930.)

Robertson, H. F.—*Vascularisation of the thoracic aorta.* (Arch. Path., 1929, 8. 881.)

The vascularisation of the epicardial and periaortic fat pads. (Amer. Jour. Path., 1930, 6, 209.)

Robinson, W. L.—*A method for preparing stereoscopic microphotographs for analysis of tissue.* (Jour. Tech. Meth. & Bull. Inter. Assoc. Med. Museums, 1929, 12, 71.)

The venous drainage of the cat spleen. (Amer. Jour. Path., 1930, 6, 19.)

Robinson, W. L., with Howland, Campbell and Maltby—*Dysinsulinism. Convulsions and coma due to islet cell tumour of the pancreas, with operation and cure.* (Jour. Amer. Med. Assoc., 1929, 93, 674.)

Department of Pathological Chemistry

Harding, V. J.—*A review of some recent theories of milk fever.* (Transactions of the Royal Canadian Institute, Vol. XVII, Part II, 1930.)

Note on some urine and blood chemistry in milk fever. (Journal of American Veterinary Medical Association, Vol. LXXV, N.S. 28, No. 6, December, 1929, pp. 702-704.)

The determination of basal metabolic rate. (University of Toronto Medical Bulletin, Vol. X, No. 2, March, 1930.)

Harding, V. J., and Downs, C. E.—*Blood sugar and amino acid nitrogen in lactation in women, with a note on lipoid and inorganic phosphorus.* (The Journal of Biological Chemistry, Vol. LXXXIV, No. 1, October, 1929.)

Harding, V. J., and van Nostrand, F. H.—*Variations in blood and urinary sugar after the ingestion of galactose.* (The Journal of Biological Chemistry, Vol. LXXXV, No. 3, February, 1930.)

Influence of the nutritive condition on the glucose tolerance test. (The Transactions of the Royal Society of Canada, Third Series, Volume XXIII, Section V, 1929.)

Harding, V. J., and Silverthorne, L. N.—*The administration of large amounts of ammonium salts of organic acids.* (The Journal of Pharmacology and Experimental Therapeutics, Vol. XXXVI, No. 4, August, 1929.)

Harding, V. J., and Van Wyck, H. B.—*Serum protein in nausea and vomiting of pregnancy.* (The Journal of Obstetrics and Gynaecology of the British Empire, Vol. 36, No. 3, 1929.)

Urobilinuria in vomiting of pregnancy. (The Journal of Obstetrics and Gynaecology of the British Empire, Vol. 36, No. 3, 1929.)

Department of Pharmacology

Henderson, V. E.—*The present status of the theories of narcosis.* (Physiol. Reviews, X. 2, April, 1930, 171.)

Anaesthetics. (U. of T. Medical Bulletin, X. 1, 1930, 3.)

Henderson, V. E., and Lucas, G. H. W.—*A new anaesthetic gas: Cyclopropane. A preliminary report.* (C.M.A.J. XXI., 1929, 173.)

Cyclopropane: A new anaesthetic. (Anesthesia and Analgesia, Jan.-Feb., 1930.)

Henderson, V. E., and Sweet, T. A.—*On the respiratory centre.* (Am. J. of Physiol. 91, 1, 1929, 94.)

Lucas, G. H. W.—*Modification of the Kjeldahl trap.* (Industrial and Engineering Chemistry. Analytical edition. 1, 3, 1929.)

Modification of the Hempl gas pipet. (Ind. and Eng. Chem. Analytical Edition. I. 3, 1929.)

Department of Physiology

Best, C. H.—*The pathological physiology of pancreatic function.* (Practitioners Series, 1930.)

de Pencier, M. T., Soskin, S., and Best, C. H.—*The effect of liver on the blood sugar level and on the sugar excretion of depancreatised dogs.* (Am. J. Physiol., 1930.)

Ferguson, J. K. W., and Irving, L.—*A method to determine the carbon dioxide content of muscle.* (Jour. Biol. Chem., 1929, lxxxiv, 143.)

Ferguson, J. K. W., Irving, L., and Plewes, F. B.—*The source of expired CO_2 in decapitated, eviscerated cats.* (Jour. Physiol., 1929, lxviii, 265.)

Hershey, J. M.—*Substitution of lecithin for raw pancreas in the diet of the depancreatised dog.* (Proc. Am. J. Physiol., 1930.)

Irving, L.—*The source of expired CO_2 and site of its retention.* (Proc. Am. J. Physiol., 1929, xc, 397.)

Irving, L., Ferguson, J. K. W., and Plewes, F. B.—*The source of CO_2 expired and the site of its retention.* (Jour. Physiol., 1930, lxix, 113.)

Irving, L., and Foster, H. C.—*The respiratory quotient of resting mammalian muscle as shown by the eviscerated spinal cat.* (Proc. Am. J. Physiol., 1930.)

Macleod, J. J. R., Hearn, N. R., and Robinson, F. L.—*Respiratory cabinet for laboratory animals.* (Jour. Lab. and Clin. Med., 1929, xiv., 1175.)

Soskin, S.—*The influence of feeding either fat and lipase or lecithin on the sugar excretion of depancreatised dogs.* (Biochem. Jour., 1929, xxiii, 1385.)

Soskin, S., and Campbell, W. R.—*The utilisation of carbohydrate by totally depancreatised dogs, receiving no insulin.* (Proc. Am. J. Physiol, 1929, xc, 524.)

Taylor, N. B.—*The physiology of the ductless glands.* (1929, republished in the Smithsonian Report for 1928, with illustrations.)

The secretion of gastric juice. (U. of T. Medical Jour. VII, No. 1, 3, Nov., 1929.)

Taylor, N. B., Branion, H. D., and Kay, H. D.—*Some effects of the administration of excessive doses of irradiated ergosterol to normal and to parathyroidectomised dogs.* (Jour. Physiol. Proc.)

Taylor, N. B., and Fine, A.—*The excretion of calcium through the intestine in parathyroidectomised animals.* (Proc. Am. J. Physiol., 1929, xc, 539.)

The excretion of calcium through the intestine. (Am. J. Physiol., 1930.)

Taylor, N. B., and Rosenthal, S. J.—*Sympathomimetic action of guanidine sulphate.* (Proc. Am. J. Physiol., 1930.)

Department of Psychiatry

Farrar, C. B.—*Changing views relative to mental disabilities.* (Canadian Nurse Winnipeg, Jan., 1930.)

Criteria of responsibility. (Journal of Criminal Law and Criminology, Chicago, May, 1930.)

Fletcher, D. R.—*Work at the Ontario Hospital, Toronto, with special reference to sulfoxyl, salvarsan and non-specific protein treatment.* (The Ontario, Journal of Neuro-Psychiatry, September, 1929.)

McLarty, G. A.—*Clinical manifestations of nervous syphilis.* (Canadian Medical Journal, Montreal, May, 1930.)

Department of Surgery

Bruce, H. A.—*Better results in acute intestinal obstruction due to recent methods of investigation and treatment.* (Canadian Medical Association Journal, Sept., 1929.)

Some unusual types of abdominal haemorrhage. (Annals of Surgery, Oct., 1929.)

Foulds, G. S.—*Silent kidney stone, report of two cases.* (St. Michael's Hospital Bulletin, 1929, Vol. IV, 72-73.)

Traumatic rupture of the urethra and bladder. (Canadian Medical Association Journal, XXII, 365-368, 1930.)

Foulds, G. S., with Scholl, A. J., *et al—A review of urologic surgery.* (Archives of Surgery, 1929, Vol. XIX, 327-374, 922-942 and 1090.

Graham, R. R.—*Thyroid intoxication.* (Journal of the Canadian Medical Association, June, 1930.)

McKenzie, K. G.—*An outline of the diagnosis of spinal cord tumours.* (The Canadian Medical Association Journal, December, 1929.)

Ryerson, E. S.—*The preparation of a curriculum (nursing).* (Proceedings of the International Congress of Nurses, Montreal, July, 1929.)

The prevention of gall-stones. (Canadian Medical Association Journal, 1929.)

Medical licensure in Canada. (Journal of the American Medical Association, 1930.)

Department of Therapeutics

Rudolf, R. D.—*Medical treatment of disease.* (University of Toronto Press, 3rd edition.)

Arterial hypertension. (Can. Med. Assoc. Jour., Jan., 1930.)

Narcotic addiction in Canada. (Can. Med. Assoc. Jour., March, 1930.)

FACULTY OF APPLIED SCIENCE

Mitchell, C. H.—*The extent and quality of Canadian engineering.* (Engineering Journal, March, 1930.)

Commercial aviation in Canada. (Canadian Chamber of Commerce, September, 1929.)

The faience and potteries of Old France. (Journal of the American Ceramic Society, February, 1930.)

Canada and the Engineer. (Proceedings of American Society of Mechanical Engineers, April, 1930.)

Department of Chemical Engineering

Boswell, M. C., with McLaughlin, R. R.—*The chlorination of methane.* (Canadian Journal of Research, Vol. I, p. 240.)

A study of some factors influencing the activity of aluminium and ferric chlorides in the Friedel and Craft's reaction. (Canadian Journal of Research, Volume I, p. 400.)

Crossley, T. L.—*Fundamental facts on the manufacture and properties of printing papers.* (Inland Printer, Jan., Feb., March and April, 1930.)

Smith, E. A., and Bain, J. W.—*Determination of sulphur in organic compounds.* (Bulletin No. 8, School of Engineering Research, University of Toronto, 1930.)

Department of Civil Engineering: Municipal and Structural

Young, C. R.—*Bridge building during 1929.* (Contract Record and Engineering Review, Dec. 25th, 1929.)

Young, C. R., and Dunbar, W. B.—*Permissible stresses on rivets in tension.* (Bulletin No. 8, School of Engineering Research.)

DEPARTMENT OF MECHANICAL ENGINEERING

Allcut, E. A.—*The influence of various factors on the power and economy of a gasoline engine.* (Bulletin No. 8, School of Engineering Research.)
The uniflow steam engine. (Bulletin No. 8, School of Engineering Research.)
Physical testing methods and apparatus. (Canadian Chemistry and Metallurgy, Dec., 1929.)
Engine inspection. (Manufacturing and Industrial Engineering, Nov., 1929-March, 1930.)
The uncommercial engineer. (Journal of the Canadian Society of Cost Accountants, March, 1930.)

DEPARTMENT OF METALLURGICAL ENGINEERING

Dyer, W. S. and Montgomery, R. J.—*Semi-commercial tests on Northern Ontario fire clays.* (Ontario Department of Mines, 38th Annual Report, part 4, 1929.)
Refractory clay deposits of Northern Ontario. (1930, Convention American Ceramic Society, Toronto.)
Montgomery, R. J.—*Laboratory tests on Northern Ontario fire clays. A survey of the ceramic industry in Ontario.* (Ontario Dept. Mines, 38th Annual Report, part 4, 1929.)

DEPARTMENT OF SURVEYING AND GEODESY

Stewart, L. B.—*Base lines.* (The Canadian Surveyor, July 1, 1930.)

FACULTY OF HOUSEHOLD SCIENCE

Watacre, J., Willard, A., and Blunt, K.—*Influence of fiber on nitrogen balance and on fat in the feces of human subjects.* (The Journal of Nutrition, Vol. II, pp. 187, Nov., 1929.)

FACULTY OF FORESTRY

Howe, C. D.—*Articles in "Canadian Forest and Outdoors"*, November and December, 1929; January, February, April and June, 1930, on the general topic of the meaning of forestry.
White, J. H.—*How Europe profits from forests.* (Canadian Forest and Outdoors, July, 1929.)
Forest management in Europe. (Canadian Forest and Outdoors, August, 1929.)

FACULTY OF MUSIC

Smith, L.—*For violin and piano: Two pieces on French Canadian folk tunes. "Tambourin," "Trochaios."* (Frederick Harris Co. of Oakville, Canada.)
Three songs: words by Duncan Campbell Scott. "At Sunset," "Imogen's Wish," "A June Lyric." (Frederick Harris Co. of Oakville, Canada.)
Part song for female voices: "Fresh from the Dewy Hill" (William Blake), (Alexander & Cable & Co., Toronto.)

FACULTY OF DENTISTRY

Cummer, W. E.—*Hobbies for dentists.* (The Apollonion, July, 1929.)
Impressions in partial denture service. (Bulletin No. 11, Canadian Dental Research Foundation, October, 1929.)
Seccombe, W.—*Presidential address.* (American Association of Dental Schools; official proceedings, 1930.)
Diet as a preventive of dental disease. (Academy of Medicine, Toronto; official proceedings.)
A modern concept of preventive dentistry. (Academy of Dentistry, New York City; official proceedings.)

(14) REPORT OF THE DEPARTMENT OF UNIVERSITY EXTENSION AND PUBLICITY

(*W. J. Dunlop, Esq., B.A., B.Paed.*)

It is a pleasure to be able to report that the work of this department for the year 1929-30 has increased greatly over that of the previous year. The total number of students in continuous courses and classes has been 3,998; 29,121 have attended extension lectures.

The teachers' course continues to grow in numbers each year; 142 new students have entered the course during this year; 11 graduated in September and 18 in June. Of these a great many have gone on and have commenced the courses in pedagogy; 195 attended the summer session and 273 attended the teachers' classes conducted at the university and in Hamilton in the evenings and on Saturdays.

In the summer session courses were conducted in first year honour mathematics and in second year honour botany, zoology, and geology for teachers who wish to become specialists. The attendance at these classes was 19.

Two hundred and ten extension lectures were delivered during the year. These were distributed as follows: Acton 1, Alliston 2, Barrie 2, Bowmanville 3, Brantford 6, Brockville 3, Burford 1, Burgessville 1, Cobourg 5, Elmvale 3, Fort William 9, Guelph 3, Hamilton 15, Islington 1, Kingston 3, Kitchener 7, Lindsay 1, London 1, Milton 1, Mount Forest 2, Muirkirk 1, Myrtle Station 1, Niagara Falls 3, Orillia 1, Orono 1, Oshawa 22, Ottawa 1, Owen Sound 1, Perth 1, Peterborough 5, Port Arthur 8, Port Colborne 1, St. Catharines 3, Sarnia 3, Sudbury 1, Sundridge 4, Thornbury 1, Thorold 5, Tillsonburg 4, Toronto 52, Trenton 1, Vineland 1, Welland 2, Weston 1, Whitby 2, Windsor 11, Wingham 2, Woodstock 1.

The members of the staff who gave extension lectures this year were: Dr. Maurice Hutton 16, Dr. Lila Maltby 16, Dr. E. J. Pratt 13, the Director 10, Professor J. F. Macdonald 8, Professor S. H. McKellar 8, Dr. G. W. Brown 7, Mr. Arthur Lismer 7, Dr. G. W. Howland 6, Professor Norman MacKenzie 6, Dr. W. E. Blatz 5, Dr. A. Brady 5, Professor J. Cano 5, Dr. C. A. Chant 5, Miss Ruth Home 5, Professor T. F. McIlwraith 5, Professor E. S. Moore 5, Professor H. J. Davis 4, Professor N. W. DeWitt 4, Professor W. J. K. Harkness 4, Professor E. A. Havelock 4, Professor F. H. Underhill 4, Professor G. S. Brett 3, Professor G. A. Cornish 3, Professor E. Goggio 3, Professor A. L. Laird 3, Professor H. R. MacCallum 3, Professor R. B. Thomson 3, Professor F. H. Anderson 2, Professor E. A. Dale 2, Professor J. R. Dymond 2, Professor C. R. Fay 2, Miss Mae Fleming 2, Dr. H. A. Innis 2, Professor D. R. Keys 2, Professor C. B. Sissons 2, Professor C. E. Auger 1, Mr. E. K. Brown 1, Professor J. T. Burt-Gerrans 1, Professor A. P. Coleman 1, Professor E. H. Craigie 1, Dr. R. D. Defries 1, Mr. W. S. Ferguson 1, Miss Merle Foster 1, Professor L. Gilchrist 1,

Professor G. E. Jackson 1, Professor H. S. Jackson 1, Dr. O. Klotz 1, Professor A. Lacey 1, Professor A. T. Laing 1, Professor John Line 1, Dr. A. G. McPhedran 1, Professor T. J. Meek 1, Professor W. A. Parks 1, Dr. G. D. Porter 1, Professor W. A. Potter 1, Mr. Harry Sanders 1, Miss G. I. Wookey 1, Professor A. H. Young 1, Professor R. K. Young 1.

Correspondence courses in upper school, middle school and commercial subjects were taken by 373 students, nearly all of them teachers who were seeking higher certificates and were taking this means of preparing themselves for the summer courses offered by the Department of Education; 168 teachers took correspondence instruction in preparation for the summer session. Other correspondence students numbered 62. It is necessary to mention here that these correspondence courses are used as a supplement to direct instruction and that no student in the teachers' course writes examinations until he has taken lectures in the subject concerned or until he has completed the necessary minimum of attendance.

The enrolment in evening classes—that is, classes which do not lead to any university diploma, certificate, or degree—has greatly increased this year and has amounted in all to 1,826. Forty classes were carried on at the university, at some of the public libraries in Toronto, in Welland, and in Jarvis. The subjects of instruction were: Accounting, advertising, appreciation of art, drama, economics, English composition and fiction, finance, French, German, history, Italian, journalism, landscape gardening, metallurgy, modern English poetry, modern world history, philosophy, psychology, public speaking, Spanish, social science. It is interesting to note that the attendance at these classes continues to be practically full strength throughout the whole year and also that many of these adult men and women take classes year after year, often in the same subject. A great deal of interest has been developed in journalism in which there have been three classes until the end of March and, after that, a special class continuing until the end of June.

Each year some new form of extension service develops. This year requests have been received for special instruction from the Chartered Institute of Secretaries, the General Accountants' Association, and the Cost Accountants' Association. These organisations have students preparing for special examinations necessary to secure a diploma from the association to which they belong and these would like to have an opportunity of taking classes in the evening at the university. For the past three years instruction in lectures and by means of correspondence courses has been provided for the Canadian Credit Institute and some of the subjects included in the curriculum of this institute are the same as those asked for by the other associations mentioned. It is hoped, therefore, that it will be possible to arrange curricula in economics, finance, accounting and commercial law which will answer the requirements of all four of these organisations. Evening classes would then be offered in these subjects to the general public, as they are now, but students from the various societies will also be able to attend and to receive instruction without the university assuming any obligation to prepare students for any examinations. This, it would appear, may be the beginning of a definite form of evening instruction in business administration and such an arrangement should be of great advantage to many young men and women now engaged in business who are anxious to improve their qualifications.

The Workers' Educational Association has continued to do good work for trade unionists and their wives as well as for other men and women engaged in occupations similar to those of trade unionists. Nine classes were conducted in Toronto with a membership of 267, six classes in Hamilton with a membership of 206, and one class in Windsor with a membership of 25. The subjects of instruction were: English composition and literature, finance, industrial psychology, labour problems, metallurgy, public speaking, trade union law and civics, art,

economics, journalism, psychology. The Workers' Educational Association has been fortunate in obtaining, for the year 1930, a grant of $5,000 from the Carnegie Corporation of New York. This has enabled the association to engage for the year a full-time organiser and secretary so as to make an earnest effort to see whether there is a future for the Workers' Educational Association in the Province of Ontario. The great obstacle is the apathy of the workingman. If this can be overcome, it should be possible to provide many classes of this kind. The grant mentioned above is sufficient to pay the salary and travelling expenses of the organiser and to pay, in whole or in part, for the remuneration of tutors in such cities as Hamilton and London where another university is situated. It would appear to be good policy that this university should not provide the remuneration for Workers' Educational Association tutors in any other university centre just as it does not carry on either teachers' classes or extension classes in such cities. This year, as never before, the Workers' Educational Association has had the co-operation of the labour leaders throughout the province and of many labour councils and labour unions.

The diploma courses in occupational therapy, in teaching and administration for graduate nurses, and in physiotherapy, have all been carried on successfully with a total enrolment in all courses of 85. The graduates in these courses are finding positions readily which would seem to indicate that, in conducting such courses, the university is doing a much needed public service.

This department co-operated with the department of social science and with the department of public health nursing in carrying on a special class and a short course for public health nurses.

A great deal of time and attention has been given to university publicity. Articles have been written for magazines and periodicals. Items of information have been provided almost daily to the newspapers of the Dominion. It is probably safe to say that some mention of the University of Toronto appears in the papers every day in the year.

The following bulletins were published and distributed: 1 for the Royal Museum of Archaeology; 1 for the Royal Museum of Zoology; and 1 for the Department of Social Science entitled "Social Work as a Profession."

The addresses delivered in Convocation Hall by the Prime Minister of Great Britain and by General Smuts were taken down verbatim and were published in pamphlet form. These were in tremendous demand and received wide distribution.

The university's exhibit at the Canadian National Exhibition attracted a greater number of visitors this year than ever before. In the exhibit the faculty of dentistry, the department of biology, the department of astronomy, and the Alumni Federation co-operated with this department.

(15) REPORT OF THE ACTING DIRECTOR OF THE DEPARTMENT OF SOCIAL SCIENCE

(Professor E. J. Urwick)

The number of full-time students taking the two years diploma course has remained almost stationary, but there has been a considerable increase in the number of part-time students. The department has arranged, in co-operation with the department of university extension, systematic courses for various special groups of workers, such as public health nurses, students in occupational therapy and physiotherapy, church workers and deaconesses in training. These courses have been attended by nearly one hundred students and observation visits have been planned and tutorial work given in connection with them.

The library of the department has been completely reorganised during the

session. In addition to the 184 students enrolled in the department, many social workers from different agencies, and also graduate and undergraduate students in the university make use of the library in increasing numbers.

The staff of the department has devoted a great deal of time to recruiting for the future in the interests of the social work of the province. The situation referred to last year of a grave dearth of qualified social workers still continues, but the efforts of the staff and co-operation given by the alumni and others show signs of attracting a larger number of well-qualified students for next session. The course has been rearranged in order to make it possible for graduates of this or other universities whose work has included some study of the social sciences to combine their work for the diploma during part of the necessary two years with paid professional work in connection with social agencies in the city. This arrangement has been made possible only by the cordial co-operation of several of the leaders of social service in Toronto. The department is also indebted to a large number of individual workers, to the number of forty or more, who have co-operated with the staff in the supervision of field work of students. Without this help so generously given the efficient work of the department would be impossible.

(16) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF PUBLIC HEALTH NURSING

(Miss E. K. Russell)

The year 1929-1930 is marked by the graduation of the first class (two in number!) to enter the four-year course in public health nursing which was started in 1926. The special feature of this course lies in the manner in which it makes use of the university to aid the conventional nursing school. The university resources are used, in as far as they can be made to serve, for the instruction of these pupils but there is no attempt to meet the conditions of a degree course. This fact makes our Toronto course markedly distinct from any combined hospital and university course that we know of on the American continent.

This year there is a decided increase in the number of applications being received for admission to both of the courses in public health nursing. Consequently—as both classes must be limited in number—a more careful selection of students can be made, thus promising a higher standard of work in the department.

The conditions that were spoken of in last year's report still need the same emphasis. Particularly we must note that we have been drawn more and more into the general problems of nursing education. This involvement follows inevitably upon the two new courses for nurses which have been started by the university, the one in 1926, and the other in 1928. Consequently we can no longer keep a sharp distinction between our work and that of the hospital training in bedside nursing. It is very evident to those who are close to these matters that some changes must occur in connection with the training of nurses: the hospital situation has altered so greatly that changes with regard to nursing and nursing schools are inevitable. The particular need of the moment is to free the nursing school of all unnecessary or artificial entanglements and give it an opportunity to work directly at its task. The average hospital school of nursing will find it very difficult to obtain even moderate freedom, principally because of economic pressure and the confusion that has been allowed to gather around this question. Hence it is particularly desirable that a special school such as ours should have freedom to work at these problems. On a small scale, experimental and demonstration work may be done that can, in turn, be of immense help to the general group of nursing schools. Canada needs such

leadership very badly and it must be provided at home for our nursing situation is not identical with that of any other country.

If it be reasonable to ask help from the university in connection with nursing schools, it appears that such help should be of the nature just suggested: that the university may lend protection and aid to a special school to train teachers for the hospital schools, to prepare specialists (*e.g.* public health nurses), and, above all, to experiment quietly and upon a small scale, with the basic hospital training in nursing. With such assistance, the nursing schools will gradually find their own place among the other schools of the country. It is very evident that we need this help from the university at the present stage of our work, but it is equally clear that our relationship should be of such a nature that we add nothing of confusion or strain to the general work of the university.

Once more we would make passing reference to the fact that the registration of foreign students continues, and that the need for a residence is felt more keenly each year.

(17) REPORT OF THE DEPARTMENT OF MILITARY STUDIES

(*Brig.-Gen. G. S. Cartwright, Director*)

As requested, I have the honour to submit the following report on the work of this department during the session 1929-30:

Enrolments—	Arts	S.P.S.	Dentistry and Medicine	Forestry	Total
1. Juniors (II Arts)	17	..	..	..	17
2. Intermediates (III Arts)	22	..	..	..	22
3. Seniors (IV Arts)	18	..	..	..	18
4. Special (for students unable to attend 1, 2 or 3)	54	39	11	3	107
5. Artillery	6	7	..	..	13
	117	46	11	3	177

The following are the results of the November O.T.C. examination:

3 obtained O.T.C. Certificate "A," Infantry
3 " " " "B," "
1 " " " "A," Medical.

In February, the following passed Part I, practical, of the March, 1930, examination for O.T.C. certificates:

For Certificate "A," Artillery 5
"B," " 1
"A," Infantry 47
"B," " 21

These sat for Part II, written, on 11th and 12th March, the results of which have not yet been received.

Two students completed the course of training with the Royal Canadian Air Force last summer and are entitled to wear the wings. Three who attended the first year course at Camp Borden and one in the second year have been recommended to continue training this year. Five have been accepted for first year training this year.

This year a number of commissions in the Canadian militia (P.F.) were offered to undergraduates holding O.T.C. Certificate "A."

(18) REPORT OF THE UNIVERSITY HEALTH SERVICE (MEN)

(George D. Porter, M.B., Director)

I.

Owing to the increased registration, the number of students examined by the medical staff has been greater than in any previous year.

Examinations:

First and second year students	1,598
Senior students	344
Re-examined by specialists	47
Total number of examinations	1,989

Results:

Those found fit for regular physical training	93	per cent.
Those having some disability requiring supervised or light exercises	5	"
Those unfit for physical training	2	"

Over half of those unfit for physical training have heart trouble, the majority of whom give a definite history of rheumatism. As usual, the physical standard of the second year student is higher than when he was a freshman. The standard of those students who in their first year were below A1 has been materially improved, 61 per cent. of them being raised and only 4 per cent. lowered through illness or injury during the year.

Corrective Classes—During the year there were 130 taking the regular work in these classes twice a week, while those who, through illness or accident during the year are unable to take more strenuous exercise are enrolled here until fit for their regular work again.

Athletics—All those playing on teams are required to pass their medical examinations.

Dispensary Service—During the year a great many students have come in for medical advice and emergency treatment due to accidents on the campus or in the gymnasium.

Vaccinations—We are having no trouble in connection with compulsory vaccinations. Formerly some 85 per cent. were vaccinated before coming to the university, but since the new regulation a larger proportion attend to this before reporting here. Those unvaccinated are done either during their examination or by their physician immediately afterwards.

We have had no outbreak of smallpox here since this ruling has been in force.

Among 5,458 students examined, 62 have had smallpox, 15 of these while at the university. Only one of the 62 had ever been vaccinated, and that was twenty-one years previously. He had a very mild attack.

Illness during the year—This year there have been granted 562 exemptions from physical training classes and C.O.T.C. for periods of from one day to a whole term. Considering the increased number of students this has been a good year, and epidemics have been less prevalent than formerly.

Approximately 60 per cent. of these exemptions were due to colds.

Twenty-five per cent. were due to injuries received on the campus or elsewhere.

Influenza, tonsil, throat and bronchial troubles come third, while the infectious diseases such as German measles, mumps, scarlet fever, measles come fourth.

Occasional cases of infectious skin diseases appear. For the prevention of the spread of these, scrupulous care is taken of the swimming pool and the gymnasium dressing rooms and showers. The towels are also sterilised.

The various causes for exemptions during the year were as follows:

Colds	339
Influenza	22
Bronchitis	6
Pharyngitis	6
Tonsilitis	27
Sinus infections	7
Otitis	7
Eye trouble	6
Dental trouble	6
Neuralgia	1
Asthma	2
Pleurisy	2
Pneumonia	3
Chickenpox	6
Scarlet fever	7
German measles	9
Measles	2
Mumps	1
Rheumatism	2
Jaundice	3
Gastralgia	2
Local infections	23
Appendicitis	2
Ringworm	4
Boils	9
Injuries:	
Fractures	10
Sprains	102
Cuts	6
Abrasions	14
Blisters	8
Operations:	
Appendicitis	4
Varicocele	1
Tonsils	3
Nasal	2
Blood transfusions for patients	2
Vaccinations	6
Total	562

(18) REPORT OF THE MEDICAL ADVISER OF WOMEN

(*Dr. Edith Gordon*)

II.

The work of the medical office increases gradually year by year. The students in increasing numbers are availing themselves of the services offered by the medical office, and each year more are served in various ways. In addition to the regular office and examining room, an upstairs room was added which was equipped as a rest room with four cots. This has proved of very great value, and has been used extensively. It is with regret that the medical office leaves its quarters at 81 St. George Street and moves once more. The new offices do not give much accommodation, but will serve until permanent quarters are found.

Physical Examinations

During the year 752 complete physical examinations were made. Of these, 428 were required of the entering women of University College, the faculties of medicine, household science, applied science and dentistry, and the Ontario College of Education. The remaining 324 represented all faculties, colleges, departments of the university, and were voluntary on the part of the students.

The good general physical condition of the women students is gratifying to note. There are, however, may correctable defects found in the course of the

examinations. These are pointed out to the student and remedies are suggested. These defects are postural and due to poor personal hygiene in the large number of cases. Special remedial classes are provided for students with marked postural defects, where individual exercises are given and special instruction and supervision is made possible. It is a delight to note the progress made by students in these groups, and the interest shown by them in endeavouring to correct their defects. The untiring patience of Miss Coventry, and her sure knowledge of corrective gymnastics have made these classes the success they are.

Defects due to wrong habits of living are pointed out and hygienic rules for daily living are suggested. The response on the part of the students to these suggestions is appreciative in most instances, and reports to the office from time to time show that some at least are endeavouring to carry out a rational living programme, and benefitting thereby.

Very few of the students have physical handicaps so great that they cannot participate in some form of physical activity. These are requested to report to the office from time to time, so that it may be determined whether they are finding the university course too strenuous. Several of such students have been advised to leave college, and have done so.

Re-examinations during the year of students in the corrective classes and those exempted from the physical training requirement because of some physical handicap are made once or oftener if the condition warrants it.

Many students are coming to realise the value of an annual physical examination, and such come into the medical office for it as a matter of course. Some improvement in the physical condition is usually noted, showing a desire on the part of the student to keep herself physically fit.

All students participating in sports are required to present a certificate of physical fitness before participation in the sport. This requirement brings large numbers to the office for examination, and ensures only the fit taking part in the competitive sports.

PHYSICAL EXAMINATIONS, 1929-1930

University College	324
Victoria College	64
Trinity College	40
St. Michael's College	52
Faculty of Household Science	81
Faculty of Medicine	22
Faculty of Applied Science	2
Department of Public Health Nursing	25
Department of Occupational Therapy	9
Department of Physiotherapy	2
Department of Social Service	1
Ontario College of Education	114
Ontario College of Art	1
Faculty of Music	1
Graduate students and occasional students	14
Total	752

COMPULSORY EXAMINATIONS

Entering women students of University College, faculties of medicine, household science, applied science, and Ontario college of education	428
Group 1. Students physically able to participate in required physical training	87%
Group 2. Students requiring supervised or corrective exercise	10%
Group 3. Students unable to participate in physical training	3%

Consultations

Each day and each week has seen the medical office busy with a constant stream of students seeking advice on some matter of personal hygiene; reporting illness either in its initial stages or after it has run its course; receiving emer-

gency treatment; reporting back for re-examinations; recording progress on a living schedule; and coming for certificates of physical fitness to participate in sports of various kinds. At the beginning of the year 38 vaccinations were performed, and through the year a few Shick and Dick tests were made. Conscientious objectors to vaccination reported monthly to the office.

Lectures

A series of three health talks based on the needs of the women as revealed by the physical examinations were given to the students required to take physical training. These were arranged through the courtesy of Miss Coventry in place of the gymnasium period and credit for attendance was granted.

A series of four lectures in personal hygiene was given to the students in the public health nursing course.

In the four-year course leading to a diploma in physical training, 25 lectures in anatomy, physiology and personal hygiene were given to the first year class; 15 lectures and demonstrations in first aid and emergencies were given to the second year class; and 20 lectures in general hygiene were given to the third year class.

Needs

A need that is pressing for attention each year with more and more force is for adequate infirmary accommodation. The problem of the student who is living in a rooming house and who falls ill, or needs a few days' rest and nursing care is a serious one. There have been one or two cases of neglected illness, and at times the medical adviser is hard put to it to know what to do with the student who is ill enough to be in bed and yet who hardly needs hospital care or cannot afford to have it. Three beds in the University College Women's Union have been available for infirmary use and during the winter have been constantly filled. Similar service is needed for the women of other colleges and faculties.

Once more a plea must be made for adequate accommodation for the physical needs of the women of the university. Overcrowded physical training classes, and lack of space for basketball and baseball practice and games have tried the patience of the physical training staff, and taxed the ingenuity of those desirous of extending the interest in games among the women of the university to the utmost. It is sincerely to be hoped that some solution to this problem is in sight and that the physical needs of women will shortly be provided for.

(18) REPORT ON ATHLETICS AND PHYSICAL TRAINING

(*T. A. Reed, Secretary, Athletic Association*)

III.

Compulsory Physical Training

There were enrolled in the first and second years 1,721 male students, and from the third and fourth years 77 students who had failed to complete their physical training in the required time. Of the first mentioned, 126 had already completed two years physical training, 30 were exempted on medical grounds, and 10 withdrew from college. The remaining 1,632 took physical training as follows:

In physical training classes	918
In corrective classes	126
In the Canadian Officers' Training Corps	272
In the following sports (part time):	
Fall term—	
Rugby football	212
Soccer	28
Harrier	18
Track	33
English rugby	12

Spring term—		
Basketball	135	
Hockey	128	
Indoor baseball	89	
Boxing, wrestling and fencing	64	
Swimming	7	
Water polo	54	
Rowing	33	
Gymnastics	21	
		834
Not registered for physical training		55
		2,205
Less those taking two or more activities		573
		1,632

General Physical Training

Under this heading are included all activities under the supervision of the athletic instructors, including those who registered in compulsory physical training classes as well as students in the higher years. The numbers enrolled set out below, include those who take part in two or more activities. There were 24 periods a week devoted to general physical training and 15 to corrective work; 21 periods a week were devoted to boxing, wrestling, and fencing and gymnastics, 3 periods to indoor track, 12 to life-saving classes, 12 "learn to swim" classes, and 27 to general swimming and water polo. For class A1 men, playing in the interfaculty series of rugby, association football, hockey, basketball and water polo, credit for physical training was allowed and several periods a week were devoted to competition in these various sports. Under the important branch of swimming, of the 173 enrolled in the "learn to swim" classes, 147 successfully passed their test. The Royal Life Saving Society granted 316 awards of certificates and medals to the 238 men enrolled in the life saving class.

	Men enrolled	Weekly periods
Physical training	1,798	24
Corrective exercise	313	15
Boxing	170	7
Wrestling	75	8
Fencing	73	4
Gymnastics	76	2
Track (indoor)	43	3
Learn to swim	173	12
Life-saving	238	12
Interfaculty water polo	108	18
Intercollegiate water polo	20	3
Interfaculty swimming	46	3
Intercollegiate swimming	12	3
Interfaculty basketball	372	30
Intercollegiate basketball	30	22
Indoor baseball	327	23
	3,874	189

Intercollegiate Athletics

The season 1929-30 will not be remembered for any long list of championships or trophies. Rather will it be regarded as a "lean" year, if successes are to be measured alone by victories won. But, in spite of this, our university teams made a fine showing, both in calibre and in sportsmanship.

A serious loss to the community and to university athletics was sustained shortly after the opening of the autumn term, in the untimely death of James Woods Douglas, the new honorary coach of the senior rugby team. A University of Toronto Schools "Old Boy," he enlisted for active service in 1916, was wounded

in action in 1918 and entered the university on his return from overseas. As a player and as coach of the juniors and the Ontario Rugby Football Union team, he earned the admiration and affection of all those with whom he came in contact. The shock of his passing undoubtedly affected the men whom he was to coach, it was hoped, to an intercollegiate championship. As it was, the team fought the issue to a tie, necessitating a play-off in Kingston on November 16, when Queen's emerged victorious with the coveted Yates cup. We won, however, the junior rugby, the track and soccer championships and recovered the harrier, held during the previous year by R.M.C., and retained the golf cup.

In the spring term our victories were meagre. Our hockey team won the John Ross Robertson cup, emblematic of the Senior Ontario Hockey Association championship, but lost the intercollegiate cup (which we had successfully held since 1915) to McGill. The intermediate team won the college championship and the juniors were runners up in the Little Big Four group in the Ontario Hockey Association. The water polo cup came to Toronto, while the swimming cup went to McGill, the basketball to Queen's, and the boxing, wrestling and fencing to McGill.

International Competitions

The hockey club made its annual jaunt to Boston and New York, playing Yale, Dartmouth and Harvard Universities, winning three of their games and losing one.

The University of Toronto entered an international water polo league, playing home and home games with the Penn Athletic Club, Montreal Amateur Athletic Association and the New York Athletic Club. As this series produced an exceptionally high standard of play, it is hoped that the experiment may warrant the continuance in such a series.

While it was not possible to field a lacrosse team entirely from undergraduates, we were able to send representatives to play against the Montclair Athletic Club, the College of the City of New York, the Crescent Club of Brooklyn and the Pennsylvania State College. This team made an excellent showing, winning four games, losing one and tying one. The progress of the American universities in this, our Canadian national game, has been remarkable and shows that Canadians must look to their laurels. The basketball team made its usual Christmas tour, competing at the Universities of Buffalo, Colgate and Rochester.

Interfaculty Athletics

Competition in intermural sports showed a considerable increase this season, there being over eighteen hundred men turning out and endeavouring to make the various teams, with the following results:

Series	Cup	Winners	Total number of men engaged	
Rugby	Sir William Mulock Cup	Victoria	335	(13 teams)
Track	W. L. Rowell Memorial Cup	S.P.S.	74	
Soccer	Arts Faculty Cup	Knox	170	(11 teams)
Harrier	J. Brotherton Cup	O.A.C.	88	
Hockey	W. T. Jennings Cup	St. Michael's	256	(18 teams)
Basketball	Hon. Clifford Sifton Cup	Forestry	267	(20 teams)
Boxing, wrestling and fencing	Francis Davidson Cup	O.A.C.	40	
Indoor baseball	A. G. Spalding Cup	Victoria	251	(17 teams)
Swimming	A. M. Fitzgerald Cup	U.C.	46	
Water polo	H. P. Eckardt Cup	Jr. S. P. S.	108	(9 teams)
Indoor track	Toronto Cricket Club Cup	S.P.S.	43	
Rowing		S.P.S.	52	(6 crews)
Tennis	F. Y. McEachern Cup (University champion)	W. M. Martin (U.C. IV)	60	
Swimming	B. Durnan Cup (University champion)	E. M. Henderson (U.C. II)	32	
Gymnasium	H. A. Wilson Cup	S.P.S.	19	

The Athletic Directorate for 1929-30 consisted of Professor M. A. Mackenzie, Professor C. H. C. Wright faculty members appointed by the President; Dr J. A. McCollum and Dr W. Easson Brown, representing the Athletic Advisory Board, and the following elected by the undergraduates: Messrs W. A. Bean, J. W. Graham, J. T. Jackson, W. M. Martin and J. D. Sinclair. Mr. W. S. Kergin, representing the Students' Administrative Council, and, *ex-officio*, Dr. George D. Porter, medical director, and T. A. Reed, financial secretary.

(18) REPORT ON PHYSICAL EDUCATION FOR WOMEN STUDENTS

(*I. G. Coventry, Physical Directress*)

IV.

During the session 1929-1930, there were 425 women students enrolled in the physical training classes, and approximately 840 gymnasium class periods conducted by the physical directress and her assistant. The classes were divided as follows:

Compulsory physical training class (all years)	354
Diploma in physical education (4-year course):	
First year class	16
Second " "	9
Third " "	10
Fourth " "	8
Occupational therapy class (second year)	28
	425

Students from University College	278
" " Trinity College	4
" " Victoria College	14
" " St. Michael's College	3
" " Faculty of Medicine	7
" " Faculty of Household Science	89
" " Faculty of Applied Science	2
" " Occupational Therapy	28
	425

Swimming

There were 335 students from all colleges, faculties and departments, and 442 class periods of instruction, during the session of seven months.

Students from University College	137
" " Victoria College	79
" " Trinity College	25
" " St. Michael's College	22
" " Faculty of Medicine	15
" " Faculty of Household Science	26
" " Department of Public Health Nursing	7
" " Faculty of Applied Science	2
Administrative staff	22
	335

Compulsory Physical Training Class

The compulsory physical training class, numbering 354 students, was subdivided into 12 classes, on account of the inadequate floor space in the undersized gymnasium, and to accommodate those students who could not attend the regular class periods for the compulsory classes.

All the students in attendance tried the final examinations in general gymnastics and corrective exercises. A report of the results of these examinations, including class attendance, was sent to the registrar. A very small percentage failed to obtain the required marks.

Corrective and Remedial Classes

Additional class periods of instruction in corrective and remedial gymnastics were given to a large number of students who were medically advised to take this special course. This necessitated two or three class periods a week under the personal supervision of the physical directress, who conducted such essential part of the work in the classroom at 81 St. George Street. Marked improvement in physical defects was noted at the end of the session.

Diploma Course in Physical Education

Students continue to show keen interest in the four year diploma course in physical education, in which 43 students were registered. Each student spends at least five hours a week during the college year on the subjects required for the course.

An interesting and gratifying feature in connection with the course is the fact that the women graduates who have been granted a diploma in physical education are in constant demand as full-time physical instructors in collegiates, normal and high schools in Toronto and other cities of Ontario,—frequently beginning with a salary of $2,000.00 a year.

Occupational Therapy Course

There were two additional classes a week for the 28 students registered in the second year course in occupational therapy.

As in past years, the same difficulty remains in connection with the university athletic teams and clubs for organised games in the gymnasium; on account of the inadequate floor space, the teams have been compelled to procure accommodation elsewhere in the city.

(19) REPORT OF THE WARDEN OF HART HOUSE

(*J. B. Bickersteth, Esq., M.C., M.A.*)

General

The undergraduate membership of Hart House this year was approximately 3,520, the increase over last year being the result of a higher registration in the university and the inclusion of the Ontario College of Pharmacy. There were slightly over 1,000 senior members, made up as follows:—Resident graduates 631, non-resident graduates 129, faculty 247. The total membership of Hart House was thus about 4,520. During the winter there were nine large social functions which involved the use of the whole building. These were the same as in previous years and tend to be held on much the same dates. The men and boys of the University Settlement were entertained at the usual Christmas party and the University of Toronto Employees Association was again granted the use of the building for its dance.

In April, Mr. F. A. Wansbrough, who has been connected with the management of Hart House for five years either as an undergraduate on the hall committee and board of stewards or as a member of the permanent staff resigned in order to take up a business position. His departure is keenly regretted by undergraduate and senior members alike. Mr. J. R. Johnston, who has been on the staff for the past year, succeeds Mr. Wansbrough as secretary of Hart House.

The election to Hart House committees took place early in March. The building was crowded with undergraduates who came to vote in the rooms allotted to the various faculties and colleges. There is great competition to be elected to the committees and electioneering of an entirely harmless character takes place.

Great Hall

The number of meals served in Hart House during the past year was approximately 316,000, of which 218,500 were served in the Great Hall.

For some years it has been clear that the kitchens, the servery and the adjoining rooms and offices are totally inadequate as regards space and uneconomical in layout. There is always a great rush of undergraduates at the midday hour and better servery accommodation would mean more men could be looked after in the limited time available. For special dinners served in the evening and for conventions in the summer better servery arrangements are equally necessary.

The hall committee, the finance committee and the board of stewards, having given this problem the most careful thought for many months, came to the conclusion that considerable structural changes ought to be carried out in this part of the building. Accordingly, the comptroller and assistant comptroller of Hart House prepared a rough draft of plans which involve the taking in of the south and north yards to the east of the Great Hall, the removal of the present east wall of the servery about ten feet further eastwards and an almost complete reorganisation above and below ground of the present layout of the storeroom, dish-washing arrangements, bakery, women's rest room, superintendent's office, staff dining room, elevators and servery. Rough estimates were also prepared. At this point Mr. Vincent Massey intimated to the board of stewards that the Massey Foundation was prepared to make a substantial grant of money towards the carrying out of these alterations. This assistance together with funds which Hart House was in a position to find justified the preparation of more detailed plans. Mr. Gilley and Mr. Cowan then devoted much time and thought to this work and the plans were approved by the board of governors in January. Messrs. Sproatt and Rolph were appointed as architects and Mr. LePan and his staff, whose co-operation has always meant so much to Hart House, took over the main responsibility for carrying through the project. There is no question that before many years the expansion of Hart House eastwards up to Queen's Park will be necessary, and the greatest care has been taken that the alterations to be carried out this summer will not in any way prejudice this subsequent addition to the building.

Mr. A. Gunn took over the post of superintendent of the Great Hall in June of last year and the efficiency with which he has carried out his duties has justified his appointment to this important position.

The business done at the shop during the past year has been the largest in its history. An adjoining room has been attractively fitted up as a place which can be used by men who bring their own lunch.

Debates

Two of the Hart House debates held this year aroused considerable comment. The first was a debate as to whether Toronto was a tolerant or intolerant city and the discussion centred round the question of free speech. The Mayor of Toronto was present as an honorary visitor and spoke several times during the evening. The resolution at the second debate dealt with the relation of Canada to the United Kingdom. It may perhaps be stated here that the object of Hart House debates is to stimulate among the undergraduates a real interest in public affairs. The debates committee has never chosen subjects for discussion in order to gain cheap publicity or to be merely provocative. It is clear, however, that unless a resolution is such as to rouse the interest or opposition of the undergraduates there is little point in holding the debate at all as no one will take part in it. The debates committee feels that Hart House debates have proved their value in so far as they have not only led many undergraduates to discuss public affairs affecting the life of this country but have also introduced as honorary visitors outstanding authorities on the subject under discussion.

Music

The Sunday evening concerts, the Friday recitals and the songsters were all held with great success. Two of the Sunday concerts were given by well known singers from New York and London and the musicians of Toronto were again ready to give their services, a brilliant series of concerts and recitals being thus made possible. Mr. Mazzoleni gave Mr. Campbell McInnes valuable assistance in conducting the songsters. The music committee helped in the management of the Holy Week performance of Bach's St. Matthew's Passion and of the concert given by the Harvard Glee Club.

Art

Fortnightly exhibitions were held throughout the academic year in the sketch room. The camera committee arranged their annual exhibition of photography in January and as usual it was visited by a particularly large number of members. In February, sculpture by Mr. and Mrs. E. Hahn attracted much interest. In March, pictures by the Manitoba Society of Artists were shown. A series of art classes was held as in previous years under the direction of Mr. F. S. Haines of the Toronto Art Gallery. Reproductions of the work of the old masters were exhibited periodically in the little sketch room. A cabinet with draw-out frames was procured and this enables the valuable collection of prints owned by Hart House to be constantly displayed. An undoubted proof of the value of the collection of pictures gradually being built up in Hart House is the fact that four of our pictures were selected to form part of a carefully chosen and representative exhibition of contemporary Canadian art being shown during the summer of 1930 in New York, Washington, and other leading American cities.

Student Christian Association

Under the guidance of the padre and the men's cabinet of the Student Christian Association the religious work in Hart House has met with encouraging support. Two series of addresses were given in the music room at which the average attendance was one hundred and fifty men. The usual services were held in the chapel and Lenten addresses were given by Dr. J. R. P. Sclater and the Rev. Stanley Russell. Among other visiting speakers were Dr. Herbert Gray, Dr. J. R. Mott, Dr. Kotschnig, the Rev. C. F. Andrews, Dr. Thelin of Geneva and Dr. Glover of Cambridge. The advisory board established in 1928 to stand behind the Student Christian Association was reconstituted this spring and Professor G. M. Wrong took over the chairmanship.

Visitors

Many visitors of interest have been received at Hart House during the past year, among whom were the Bishop of Winchester, M. André Siegfried, Dame Edith Lyttelton, Lord Hailsham, the Archbishop of Melbourne, Mr. Thomas Jones (deputy secretary of the British Cabinet), Lord Falmouth, Sir Barry Jackson, Dr. Malcolm MacKeith (Oxford), Dr. J. T. M. Anderson (Prime Minister of Saskatchewan), the Rt. Hon. J. C. Smuts, the Hon. J. M. Tokugawa (Japanese Minister to Canada), Sir William Clark (British High Commissioner at Ottawa), Professor J. Stanley Gardiner (Cambridge), Professor V. Macchioro, Professor H. W. Garrod, the Rt. Hon. Lord Eustace Percy, Professor J. Arthur Thomson, the sixteen headmasters of British public schools and the Archbishop of New Zealand. Among the headmasters were Dr. Cyril Norwood (Harrow), Mr. Frank Fletcher (Charterhouse), Mr. G. C. Turner (Marlborough), Mr. J. Talbot (Haileybury), Mr. F. B. Malim (Wellington), Mr. W. Hamilton Fyfe (Christ's Hospital), Mr. Maurice Jacks (Mill Hill) and Mr. John Bell (St. Paul's). The object of the visit was to enable the headmasters to learn about Canadian universities with a view to a certain number of suitable boys coming straight from their schools in England to take their university course in this country.

(20) REPORT OF THE DIRECTOR OF THE CONNAUGHT LABORATORIES

(*J. G. FitzGerald, M.D., LL.D.*)

This is the sixteenth report of the director of the Connaught Laboratories. The activities herein briefly reviewed cover the period July 1, 1929, to June 30, 1930. There has again been during this time a notable increase in the work of the laboratories both in research and production. It is only three and one-half years since much larger quarters were occupied in the new hygiene building, but already these are found to be inadequate to meet the needs of the university section of the laboratories, this, too, despite the removal to the farm section of serum concentration, filtration, etc., formerly carried on in the new building. This expansion is gratifying but brings with it fresh problems for the solution of which careful consideration and study are necessary.

It continues to be a matter of no little difficulty to recruit suitably trained personnel. This is true both of research and technical assistants. The aim of those immediately responsible for administration has ever been to avoid, if possible, seasonal and part-time employment except in a few combined research and clinical appointments. Many phases of the work are highly specialised. The preparation of each member of the staff is regarded as an undertaking of importance. Every encouragement is afforded younger technical assistants to continue their studies and preparation for more responsible posts to which they may be assigned. The qualities of thoroughness, carefulness, diligence and devotion to duty require to be supplemented by an eagerness to advance to a better understanding of all aspects of the work in which they are engaged.

Since the primary function of the Connaught Laboratories is research, members of the staff and especially the younger technicians, are encouraged to utilise to the full the splendid library of the laboratories. Current journals, special monographs and complete sets of publications in the fields of bacteriology and immunity, physiology, biochemistry, public health and preventive medicine are available. In addition, all important text-books on these subjects are acquired as soon as they appear. Bound volumes in the library now number 1,800.

The information service rendered by the laboratories to physicians, departments of health, hospitals, etc., is constantly extending in scope and character. This affords excellent opportunities for team work of the best sort with those confronted daily with the problems of how to combat infection. The fight against diphtheria continues to be waged with unabated zeal in many communities. These laboratories have distributed sufficient diphtheria toxoid (anatoxine Ramon) for the immunisation of 700,000 persons during the past four and a half years. Diphtheria can be brought under practically complete control in any community. This statement made in previous reports is here repeated because this becomes increasingly manifest as the evidence on the question accumulates.

Staff—The staff of the Connaught Laboratories now numbers 148 persons. This is an increase of 27 since June 30, 1929. Fortunately it has been possible within the past six months to add to the research staff at the university farm. Dr. C. Siebenmann, a chemist trained in Basel and in Paris, with a number of years of experience, has for the past six months been associated with Mr. M. D. Orr, resident assistant director of the farm section, in the conduct of investigations of special interest and importance. Dr. Donald Fraser, senior assistant director, has collaborated in this undertaking. Dr. R. D. Defries, associate director, after fifteen years' splendid service, has been on leave of absence for three months in Europe. He has visited many laboratories in Great Britain, France, Holland,

Germany and Switzerland, and has devoted special attention to investigations being carried on in the field of the filterable viruses. Nearly all of the important serum institutes in the above-mentioned countries have been visited by Dr. Defries and he has been most courteously received by the staffs, to whom the Connaught Laboratories are very much indebted. This personal exchange of ideas has been of the greatest possible value. Details of staff changes through promotions, appointments and resignations have as heretofore been reported to the governors through the medium of the Connaught Laboratories committee.

Research—For the first time since the opening of the farm section comprehensive investigations conducted jointly by staff members resident there and others working in the university have been carried on. Unusual opportunities exist for exploration in a number of fields of research in the further extension of the studies thus initiated. Histaminase, filterable viruses, streptococci, diphtheria antitoxin content of human beings, tetanus toxoid, crystalline insulin, the action of dye-stuffs on toxin, strains of meningococci, statistical investigation of deaths from diabetes, are a few of the subjects under investigation during the year.

An interesting study of the value of certain types of anti-streptococcic serum in the treatment of puerperal sepsis has been in progress for several months in the city hospital, Aberdeen (Scotland). Dr. J. Smith, bacteriologist to that hospital, and some of his clinical colleagues have collaborated with workers in the Connaught Laboratories in this undertaking. Publications by members of the staff which have appeared during the year are listed in Appendix A.

Public Service—A task long contemplated has been completed during the year. The evidence of this is the appearance of an interesting and most attractive book describing the work of the Connaught Laboratories. Mr. F. Lorne Hutchison, comptroller, has carried the major share of the burden of preparation and arrangement for publication of this book. After a brief historical review, the activities as well as facilities of the laboratories are concisely but comprehensively outlined. A wealth of illustrations adds materially to the value of the book and in every way it reflects great credit upon those responsible for its publication.

The total volume of products distributed in 1929-30 is the greatest since the opening of the laboratories. The products include: anti-anthrax serum, anti-meningococcic serum, anti-rabic vaccine, Dick test outfits, diphtheria antitoxin, diphtheria toxoid, insulin, liver extract, normal horse serum, paratyphoid vaccine, pertussis vaccine pneumococcus (types I and II) serum, scarlet fever antitoxin, scarlet fever toxin, Schick test outfits, tetanus antitoxin, tuberculin, typhoid vaccine and vaccine virus.

Again the Connaught Laboratories have co-operated with a number of physicians in the preparation of human convalescent serum for the prevention of measles. In addition, similar assistance was afforded the Department of Health, Ontario, in the preparation of convalescent anterior poliomyelitis serum.

The countries in which products of the laboratories were distributed this year include:—Barbados, Trinidad, Dominion of Canada (all provinces), China, Irish Free State, Japan, Newfoundland, New Zealand, Roumania, South Africa, Uruguay.

Further progress has been achieved at the farm section where the direct supervision of Mr. M. D. Orr, resident assistant director, has been of great benefit. Living quarters are now provided at the farm for seven families.

Visitors from many foreign lands have as in previous years spent brief periods in observing the work of the laboratories. All graduate, as well as fifth year undergraduate medical students registered in the faculty of medicine have also visited the university and farm sections of the laboratories.

It is desired to record with appreciation the fullest measure of co-operation and support of the Connaught Laboratories committee of the governors, of my administrative colleagues and of the staff of the laboratories generally to whose interest and devotion so much credit is due for further progress during the present year.

(21) STATEMENT REGARDING THE MUSEUM OF ARCHAEOLOGY

(Professor C. T. Currelly)

The happy news of an extension of the museum has come at a time when it seemed quite impossible to go on any longer with the present accommodation. The lack of space in galleries, offices, workrooms and storage rooms has caused the general work of the past year to be done under very considerable difficulties.

As regards accessions, however, the year has been singularly fortunate. A number of interesting English bronze weapons and a fine Hungarian short sword were added to the department of prehistory; and a carved wood sarcophagus with a long inscription, and a beautiful mirror with its original wooden handle, were obtained for the Egyptian collection.

In the classical department, the acquisitions have been of extreme importance. A large vase by Polygnotus the Younger is one of the most notable objects that we have ever secured. Other specially interesting pieces are four marble figures fron the islands, a beautiful Etruscan horse's muzzle, and one Greek and two Etruscan bronze helmets. An article of the utmost importance is a coat of Roman scale armour excavated from Lake Trasimene. This armour was commonly worn by centurions; but though it is extremely well known from the monuments, ours is as far as I know the only example that has survived. In the Roman-British section, we have obtained chiefly a small collection of pottery from York, and a large number of pieces of ironwork and iron tools from London. We have also added another painting by A. Forestier, showing the restoration of the third century Roman-British villa at Chedworth, Gloucestershire.

By far the greatest advance of the year has been in the department of arms and armour, the additions being very nearly equal in value to the whole of the earlier collection. We have acquired three magnificent suits dating about 1540, 1560, and 1580, and a boy's suit of about 1550; a fine Spanish Gothic breastplate, a James I pot helm, a simple Gothic steel hat, one of the famous spider helmets, a French mortuary helm, two early Turkish helmets, a *manteau d'armes* formerly in the possession of Prince Radzivil, and two extremely fine chain shirts of types not previously in the museum. Many remarkable additions have been made to our collection of swords. The Turkish government recently sold the Christian swords captured by the Turks at the time of their first eruption into Europe, and we have procured four early Gothic swords captured and inscribed at that time. From Dresden we have obtained a set of fine swords formerly in the possession of the Electors of Saxony, and several early maces, war hammers and pistols. The conversion of the imperial armoury of Russia into an armour museum gave us the chance to get some pieces that had belonged to the emperors of Russia. Outstanding is a revolving-chamber flintlock gun with very gorgeous iron and gold work, made for the emperor's private use. This gun very nearly reached the complete requirements of the revolver, the revolving-chamber having to be held by the hand, however, whereas in the Colt patent obtained so long afterwards it is held in place by a mechanism. Other smaller pieces added to the collection are a number of testers for finding the strength of powder, as supplied to the artillery in the seventeenth and eighteenth centuries, a Viking sword found in England, some fine Scottish weapons, an extremely rare Highland targe, a sword such as used by the admirals of the British fleet that met the Armada, and

two English guns dated in the year of the Armada. A very beautiful chain mail tippet as worn by the landsknecht and a magnificent landsknecht sword recall these mercenaries so popular at the height of the renaissance. Two early Gothic hafted weapons raise our collection of hafted weapons to a very good level. Three hafted weapons found in the thatch of a house in the Cotswolds point to a search for arms in Elizabeth's day; and three crossbow bolts that were also found in an English cottage show types used in England in the fifteenth century. Certain pieces of horse-furniture, such as the steel front of a saddle, stirrups and bits, help round out the picture of the marvellous workmanship of the great armourer's craft that so engrossed the attention of men for many centuries.

A fine collection of Japanese sword furniture, guards and the caps for handles, shows the highest pitch of the work in many metals.

A large number of important pieces have been added to the great Chinese collection, mainly from the early periods: seven of the elaborately decorated pottery vessels that date back perhaps as far as 3500 B.C., and differ very widely from later ideas of Chinese design; bronze weapons, mirrors, and four remarkable kneeling human figures; a collection of tenth to thirteenth century seals from the Nestorian Christian communities in China; and some valuable porcelains that fill gaps in their section.

We have been able to secure several examples of other Asiatic art almost unrepresented in the museum previously: three very fine Cambodian sculptures, two Siamese, and four from Gandhara, of which two retain the classical tradition very strongly, while the other two show the Buddhistic development.

The department of printing and the book also stands out prominently in this year's accessions, having been enriched by two beautifully illuminated leaves from early music books, nine fine Dürer woodblocks, three engravings by Lucas van Leyden, and nine etchings by Rembrandt. Over seventy mezzotints have been received, and a collection of Charles Keene's drawings for *Punch*. The collection of postage stamps has been steadily increased under the care of Mr. Paul Hahn. His Majesty King George made a gift of stamps of the Empire, which has attracted a great deal of attention.

The collection of European ceramics has been considerably enlarged, especially by a surprising number of rare, early English potteries. If this collection can continue to grow at anything like this year's rate, it will be of outstanding importance to Canada.

Very little general metalwork has been obtained. Thirty watches were added to the J. Sutcliffe Smith collection, and a subscription from Mr. Smith transferred to his collection the forty-two watches formerly in the George Crofts collection.

The ethnographical department has received its most valuable additions in Peruvian materials, fine textiles, leatherwork, and numerous fine pottery vases from pre-Inca tombs. A few excellent Australian aboriginal stone implements in their original handles fill a long-felt want. Two good statues in wood from Papua give us a start in South Sea carvings. On the North American side, the additions of greatest value have been the Eskimo and the British Columbian, among which are two enormous totem poles of very fine quality.

The general work of the museum has gone on as usual. Over 4,000 pieces have been entered in the accession catalogue, and the work of the final, illustrated catalogue has progressed steadily. The customary care, mounting, and casing of the collections has been carried on.

Miss Payne has with great success continued her teaching of the public school children, which is working out as one of the very important activities of the museum. Miss Home has also continued her classes and lectures. Both have worked under extreme difficulties; it was quite impossible to find seating accommodation for Miss Home's afternoon lectures.

I want particularly at this time to emphasise how enthusiastically the whole staff has worked, in spite of the very great difficulties resulting from our serious congestion.

(22) BIOLOGICAL MUSEUM AND ROYAL ONTARIO MUSEUM OF ZOOLOGY

(*Professor B. A. Bensley*)

The rate of growth of the collections is being accelerated each year due in large part to the increasing number of persons interested in the museum's work. Owing to the shortage of space it is now quite impossible to arrange the material in any proper way; all that is possible is to store it so that it will not be injured by exposure to dust, light and the ravages of museum pests. This means that the collections are becoming less and less accessible for purposes of reference and study.

Some of the more important donations during the year were as follows:— Mrs. Jonathan Dwight, New York, 160 colour drawings of the soft parts of birds by Allan Brooks; Dr. J. W. Inches, Detroit, mounted impala head; Wallace Havelock Robb, complete set of "Transactions of Ottawa Field-Naturalist Club," its successor the "Ottawa Naturalist," and its successor "Canadian Field Naturalist" (1879-1929); Paul Hahn, two passenger pigeons; Dr. W. D. Strong, Lincoln, Neb., through Allan Brooks, 145 skins; A. Van, a valuable collection of wild-life photographs; Jack Miner, 65 birds; W. K. Kellogg, Augusta, Mich., through Geo. H. Corsan, 15 birds, including black-necked and trumpeter swans, several species of geese and pheasants; W. E. Saunders, 143 birds and 14 mammals; John Edmonds, 18 birds and 3 books; T. W. Jull, 7 ducks; J. H. Fleming, a collection of insects, 19 mammals, 4 birds, 12 nests and sets of eggs; Prof. A. F. Coventry, 51 mammals and a collection of amphibians and reptiles; Toronto Parks Department, 21 specimens, including ocelot, leopard, Barasingha and Japanese deer, boat-bill heron, rosy flamingo, crowned crane and horned tragopan.

Other donations were received from W. B. Archer, L. H. Beamer, E. Beaupre, W. G. Bentham, N. D. Blea, A. Buchanan, G. Campbell, W. D. Christianson, C. H. D. Clarke, Dr. P. E. Clarkson, H. Cooper, Prof. C. T. Currelly, R. G. Dingman, J. Dukes, Mrs. W. Else, J. H. Emery, Jas. C. Forman, D. Gillespie, Roswell Goldie, A. D. Harkness, Dr. A. J. Harrington, Dr. Paul Harrington, P. Harshman, E. Holt, E. Hope, Mrs. Hounsell, A. Maclean Howard, Dr. W. E. Hurlburt, F. P. Ide, Jas. Kay, Mrs. M. Kitching, Monroe Landon, W. J. LeRay, Dr. H. F. Lewis, Jas. Limon, R. V. Lindsay, Dr. J. W. MacArthur, D. A. MacLulich, J. Madill, J. Macks, R. O Merriman, F. Merritt, Mrs. L. Middleton, Mrs. O. S. Mitchell, W. F. Moore, W. E. Morris, J. H. Munro, F. Nokes, Miss L. J. Payne, Dr. N. A. Powell, Dr. D. S. Rawson, G. Redfern, H. Reeve, W. E. Ricker, R. J. Rutter, Mrs. H. Sargent, Mrs. M. E. J. Servos-Snyder, W. K. Skey, N. Spreadborough, Dr. Starr, L. Sternberg, T. F. Stovell, H. W. Swaine, S. L. Thompson, J. Townson, A. Tracy, A. Twining, F. A. C. Tyrrell, Toronto *Globe*, Toronto Humane Society, Miss Rachael Wheeler, A. Wilkes, A. A. Wood.

The following material was purchased:—19 Arctic birds from Chicago Academy of Sciences; small collections of mammal skins from A. A. Wood and R. W. Darrow; collections of bird skins from K. Racey, W. F. H. Rosenberg and H. B. Haugh; a parasitic jaeger from F. J. Humphrey; a porcupine from C. Kay and wolf skulls from R. Beck, A. J. McGregor and C. B. Spangler.

Field parties sent out by the museum and miscellaneous collecting by the staff added 343 bird and 234 mammal skins, as well as much miscellaneous material such as amphibians, reptiles, bird stomachs, nests and eggs.

The study collection of amphibians and reptiles has been catalogued and labelled and stored in systematic order. It consists of 2,319 specimens.

The collection of Canadian spiders is being similarly catalogued and arranged.

Additions to the pamphlet collection numbered 653.

(23) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF GEOLOGY

(*Professor E. S. Moore*)

During the past year a considerable number of exhibits has been installed. These exhibits comprise some important specimens that had been received in the previous year and for which cases were not then available. In addition, new collections have been received as donations from friends of the museum, in exchange and by purchase, which greatly enhance the value of the exhibits on display in the geological gallery.

Presentations to the museum during the year include the following:

A collection of specimens of zinc-lead-copper ore from Mr. E. L. Stenger, Treadwell-Yukon Company, Bradley, Ont.

A peculiar concretion from the Errington mine, Bradley, Ont. Mr. H. C. Rickaby.

Zinc-lead ore from Lucky Strike mine, Newfoundland. Dr. J. E. Maynard.

Galena, gersdorffite and niccollite from Worthington mine, Ontario. Messrs. W. J. Mumford and J. T. O'Connor.

Copper ore from White Lake mine, Ontario. Mr. L. D. Huntoon.

"Box" vein structures from Lyondale, New York state. Professor Nelson C. Dale.

Iron ores and asbestos, and gravels from the diamond diggings, South Africa. Dr. A. P. Coleman.

Arsenical gold ore from Shoal lake, Ontario. Mr. P. E. Hopkins.

Section of magnetite vein, Mangowin township, Ontario. Mr. S. J. Owen.

Gold ore. Mr. C. R. Smith.

Sphalerite from Bruce county, Ontario. Mr. A. E. Tyson.

Gold ore from Kirkland Lake, Ont. Mr. J. A. Paterson.

Exchanges

Lead and iron ores from Newfoundland. Rutgers University.

Suite of specimens of English iron ores. Geological Survey and Museum, London, England.

Purchases

Rich native gold ore from Cadillac-O'Brien mine, Quebec.

Suite of specimens from Nevada, illustrating the various stages in the replacement of wood by opal.

(24) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF MINERALOGY

(*Professor T. L. Walker*)

During the year additions to the museum have continued at a satisfactory rate. About 500 entries have been made in the catalogue while the weight of material received amounts to about ten tons, the largest single specimen a fine block of chalcopyrite, the ore at the Noranda mines, weighing nearly two tons. As usual only a small fraction of the material finds its place in the exhibition gallery owing to lack of space and more largely because such exhibition is not

desirable. Most of the material by weight remains in the storerooms and laboratories to be used for scientific study and for exchange with other museums.

As due acknowledgment is regularly made to donors and friends it is not necessary to give here an extensive list of additions during the year. As usual we have been able to add by purchase and exchange, but most of the new material comes either from the field work of the staff or as donations from generous friends. Important presentations have been obtained from the following:

The Hollinger Gold Mines Consolidated, Ltd.
Noranda Mines Ltd.
Teck-Hughes Gold Mines, Ltd.
Rand Mines Ltd.
J. A. McAndrew, Esq.

Important exchanges have been arranged with the following:

United States National Museum.
The Rhodesia Museum.

The field work of the assistant director, Professor A. L. Parsons, in Eastern Ontario and that of the director in South Africa has yielded a large amount of material for study, exchange and exhibition.

In the exhibition gallery displays have been arranged to illustrate the magnetism of magnetite and the action of ultraviolet light on certain sensitive minerals. The great surplus of minerals from the mines of Cobalt have been systematically arranged in storage cases so as to be easily available for study, display or exchange.

The decision to extend the museum building so as to give increased space for mineralogy will make it possible to utilize the valuable material now in store to greater public advantage.

(25) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF PALAEONTOLOGY

(Professor W. A. Parks)

During the year the series of invertebrate fossils has been increased by both collection and purchase. The generic set in the laboratory has been extended to include the pelecypods. The expedition of 1929 to the mammal localities of Nebraska and Wyoming obtained a number of valuable specimens that have not been unpacked as the preparators were engaged throughout the year in mounting a large dinosaur skeleton. This specimen will be ready for the gallery in the autumn. A case of fossil turtles and a fine replica of prehistoric bisons have been installed.

The more important acquisitions during the year are as follows:

By donation

Large collection of prints—American Museum of Natural History.
Miscellaneous collection of fossils from South Africa—Dr. A. P. Coleman.
Jurassic fossils from Blairmore, Alta.—Geol. Surv. of Canada.
Thirty-four sharks' teeth from the miocene of Maryland and South Carolina—U.S. National Museum, Washington.
Collection of books—Mrs. T. Goldie, Guelph, Ont.
Fossils from California—Mrs. Hellwig, California.
Bryozoas and stromatocerium, Glenburnie, Ont.—Marshall G. Kay, Esq.
Fossils from the Humber river—T. L. Lalonde, Esq., Toronto.
Horse—mare with wolf teeth—G. Philps, Esq., Toronto.
Groundhog head, Ontario—J. Rickett, Esq. Toronto.

By purchase

Hamilton fossils—Mrs. A. Kearney, Thedford, Ont.
Collection of fossils—Dr. F. Krantz, Germany.
Large slab with triassic fossils—Percy Train, Nevada.
Coralliochama orcutti, cretaceous of Mexico—Percy Train, Nevada.
Replica of fossil bisons from the museum of Toulouse, France.

By exchange

Trilobites from New York—Rutger's University, N.J.
Three vertebrate specimens, Sask.—Victoria Memorial Museum, Ottawa.

By collection

Invertebrate fossils from the devonian of Gaspé, Quebec—The director.
Invertebrate fossils from the ordovician of Lake St. John—The director.
Large series of mammals from the oligocene and miocene of Nebraska—University expedition of 1929.

APPENDIX B

REPORT OF THE ACTING REGISTRAR

(A. B. Fennell, Esq., M.A.)

I beg to submit the following statistics for the year ending June 30, 1930:

(*a*) Distribution of the staff of the University and University College (furnished by the Bursar).
(*b*) Distribution of the staffs of the federated Arts Colleges (furnished by the Registrars of the colleges).
(*c*) Registration of students by faculties and years.
(*d*) Enrolment in the Arts Colleges (furnished by the Registrars of the colleges).
(*e*) Enrolment in the university departments in Arts (furnished by the departments).
(*f*) Registration in courses in the Faculty of Arts.
(*g*) Registration in courses in the School of Graduate Studies (furnished by the Secretary of the school).
(*h*) Results of annual examinations (furnished by the Secretaries of the faculties).
(*i*) Admission to degrees.
(*j*) Geographical distribution of students (furnished by the Secretaries of the faculties)

(*a*) DISTRIBUTION OF THE STAFF OF THE UNIVERSITY AND UNIVERSITY COLLEGE:

	Professors	Associate Professors	Assistant Professors	Associates	Lecturers	Directors	Assistant Directors	Instructors	Other Sessional Appointments	
University (Faculty of Arts).....	37	28	16	—	26	—	—	—	97*	204
University College.....	14	10	7	—	10	—	—	—	6	47
Faculty of Medicine.....	21‡	13	19	16	18†	—	—	—	170**	258
Faculty of Applied Science.....	14	13	8	—	13	—	—	—	44	92
Faculty of Household Science....	2	—	1	—	3	—	—	—	9	15
Faculty of Forestry.....	2	2	—	—	1	—	—	—	1	6
Faculty of Music.....	—	—	—	—	4	—	—	—	1	5
Faculty of Dentistry.....	11††	5††	2††	10	3††	—	—	—	23††	54
Public Health Nursing.....	—	—	—	—	13*x*	1	—	—	—	14
Social Science.....	—	—	1	—	6	1	1	—	—	9
Ontario College of Education....	6	6	—	—	7	—	—	25	—	44
										728

*3 also in Medicine
†1 also in University
‡1 also in University; 2 also in Dentistry; 2 also in Ontario College of Education
**1 also in Dentistry
††1 also in Medicine
‡‡2 also in Medicine; 1 also in Forestry
*x*4 also in Medicine; 1 also in Dentistry

(*b*) DISTRIBUTION OF THE STAFFS OF THE FEDERATED ARTS COLLEGES:

	Victoria College	Trinity College	St. Michael's College
Professors	12	12	15
Associate professors	9	..	..
Lecturers	3	7	12
Instructors	4	..	..
Fellows	3	..	..
Reader	1	..	..

(*c*) REGISTRATION OF STUDENTS BY FACULTIES AND YEARS:

The number of students registered in the university, in colleges and faculties, in the session 1929-30, was 6,759, distributed as follows:

				Men	Women	Total
Faculty of Arts				2,083	1,603	3,686
University of Toronto	496	217	713			
University College	801	654	1,455			
Victoria College	408	475	883			
Trinity College	180	139	319			
St. Michael's College	200	141	341			
Registered twice	2	23	25			
Faculty of Medicine				701	68	769
Faculty of Applied Science and Engineering				697	4	701
Faculty of Household Science				...	203	203
Ontario College of Education				284	335	619
Faculty of Forestry				62	...	62
Faculty of Music				25	16	41
School of Graduate Studies				336	138	474
Faculty of Dentistry				227	20	247
Registered twice				37	6	43
				4,378	2,381	6,759

In departments there were registered 419, distributed as follows:

	Men	Women	Total
Department of Social Science	4	85	89
Department of Public Health Nursing	...	245	245
University Extension (Occupational Therapy)	...	50	50
University Extension (Course for Graduate Nurses)	...	23	23
University Extension (Physiotherapy)	...	12	12
	4	415	419

The grand total of registration for the whole university was 7,178, of which 4,382 were men and 2,796 were women.

In addition there were 3,426 persons registered in the department of university extension in courses and at provincial centres which are referred to in detail in Appendix A (14).

The figures may be further analysed as follows:

FACULTY OF ARTS

University of Toronto

	Men	Women	Total
Teachers' Courses and Summer Session	225	186	411
Occasional Arts students	271	31	302
	496	217	713

University College

	Men	Women	Total
First year undergraduates	310	230	540
Second year undergraduates	219	161	380
Third year undergraduates	130	133	263
Fourth year undergraduates	127	105	232
Occasional students	15	25	40
	801	654	1,455

Victoria College

	Men	Women	Total
First year undergraduates	134	164	298
Second year undergraduates	89	114	203
Third year undergraduates	100	96	196
Fourth year undergraduates	84	96	180
Occasional students	1	5	6
	408	475	883

Trinity College

	Men	Women	Total
First year undergraduates	65	44	109
Second year undergraduates	50	40	90
Third year undergraduates	37	34	71
Fourth year undergraduates	28	20	48
Occasional students	..	1	1
	180	139	319

St. Michael's College

	Men	Women	Total
First year undergraduates	74	43	117
Second year undergraduates	58	41	99
Third year undergraduates	35	30	65
Fourth year undergraduates	19	25	44
Occasional students	14	2	16
	200	141	341

FACULTY OF MEDICINE

	Men	Women	Total
First year undergraduates	103	6	109
Second year undergraduates	99	13	112
Third year undergraduates	114	8	122
Fourth year undergraduates	132	17	149
Fifth year undergraduates	125	9	134
Sixth year undergraduates	93	15	108
Candidates for Degree of B.Sc. (Med)	5	..	5
Candidates for D.P.H.	15	..	15
Post Graduate students	14	..	14
Occasional students	1	..	1
	701	68	769

FACULTY OF APPLIED SCIENCE AND ENGINEERING

	Men	Women	Total
First year undergraduates	274	2	276
Second year undergraduates	157	1	158
Third year undergraduates	150	..	150
Fourth year undergraduates	116	1	117
	697	4	701

FACULTY OF HOUSEHOLD SCIENCE

	Men	Women	Total
First year undergraduates	...	69	69
Second year undergraduates	...	53	53
Third year undergraduates	...	36	36
Fourth year undergraduates	...	42	42
Occasional students	...	3	3
	...	203	203

ONTARIO COLLEGE OF EDUCATION

	Men	Women	Total
Students in attendance	106	259	365
Extra-mural students	45	53	98
Students in B.Paed. course	139	26	165
Registered twice	6	3	9
	284	335	619

FACULTY OF FORESTRY

	Men	Women	Total
First year undergraduates	16	...	16
Second year undergraduates	16	...	16
Third year undergraduates	19	...	19
Fourth year undergraduates	11	...	11
	62	...	62

FACULTY OF MUSIC

	Men	Women	Total
First year undergraduates	9	5	14
Second year undergraduates	5	7	12
Third year undergraduates	7	4	11
Candidates for Mus. Doc. degree	4	...	4
	25	16	41

SCHOOL OF GRADUATE STUDIES

	Men	Women	Total
Candidates for Ph.D	66	21	87
Candidates for M.A	122	42	164
Candidates for Ch.M	1	...	1
Candidates for M.A.Sc	6	...	6
Candidates for C.E	3	...	3
Candidates for E.E	1	...	1
Candidates for D.Paed	51	5	56
Candidates for M.S.A	17	1	18
Graduate students	69	69	138
	336	138	474

FACULTY OF DENTISTRY

	Men	Women	Total
First year undergraduates	31	...	31
Second year undergraduates	30	...	30
Third year undergraduates	29	...	29
Fourth year undergraduates	60	1	61
Fifth year undergraduates	64	...	64
Candidates for Degree of B.Sc. (Dent)	11	...	11
Occasional students	2	...	2
Dental Nurses	...	19	19
	227	20	247

DEPARTMENT OF UNIVERSITY EXTENSION

	Men	Women	Total	Grand Total
B.A. Course				
Summer Session:				
Regular	92	89	181	...
Occasional	5	9	14	195
Teachers' Classes:				
Toronto:				
Regular	132	78	210	...
Occasional	3	6	9	...
Hamilton:				
Regular	14	31	45	...
Occasional	2	7	9	273
Specialists' Courses				
Summer Session:				
Regular	18	1	19	19
Registered twice	41	35	76	76

DEPARTMENT OF SOCIAL SCIENCE

	Men	Women	Total
First year full-time students	4	13	17
Second year full-time students	...	13	13
Part-time students	...	59	59
	4	85	89

DEPARTMENT OF PUBLIC HEALTH NURSING

	Men	Women	Total
Full-time students	...	41	41
Part-time students	...	204	204
	...	245	245

(*d*) ENROLMENT IN THE ARTS COLLEGES

(1) University College:

	Greek	Latin	Ancient History	English	German	Scientific German	French	French C. and F.	Hebrew (Orientals)	Lit. (Orientals)	History (Orientals)	Ethics
First Year—												
Pass	10	275	60	297	28	75	301	..	24	115	..	11
Honours	9	41	54	168	33	..	94	..	1	..	..	..
Commerce & Finance	..	..	..	..	..	..	..	95	..	..	..	..
Second Year—												
Pass	8	52	10	244	11	33	185	..	16	78	20	36
Honours	8	28	8	50	22	..	49	..	..	..	..	6
Commerce & Finance	..	..	..	..	..	..	..	33	..	..	..	..
Third Year—												
Pass	5	20	8	136	11	..	71	..	5	61	25	63
Honours	3	6	28	24	5	..	24	..	4	..	2	5
Commerce & Finance	..	..	..	..	..	..	..	10	..	..	..	..
Fourth Year—												
Pass	5	17	6	106	10	..	67	..	2	36	10	24
Honours	9	10	9	18	7	..	18	..	..	..	..	5
Commerce & Finance	..	..	..	..	..	..	..	18	..	..	..	..
Totals—												
Pass	28	364	84	783	60	108	624	..	47	290	55	134
Honours	29	85	99	260	67	..	185	..	5	..	2	16
Commerce & Finance								156			..	..

NOTE—

In addition, these departments of the College provided instruction to students enrolled in other Faculties than Arts and in the Teachers' Courses: French 85.

(2) Victoria College:

	Greek	Latin	Ancient History	English	German	Scientific German	French	Orientals	Ethics	Rel. Know.
First Year—										
Pass	7	78	18	83	7	..	90	14	..	112
Honours	9	50	76	97	20	46	86	..	11	..
Commerce & Finance	..	..	..	..	..	..	32	..	..	..
Second Year—										
Pass	3	30	4	142	5	..	115	13	18	89
Honours	4	21	6	38	15	21	30	..	6	..
Commerce & Finance	..	..	..	..	..	..	8	..	..	..
Third Year—										
Pass	2	9	6	79	7	..	41	3	38	71
Honours	6	4	6	29	6	..	15	1	11	..
Commerce & Finance	..	..	..	..	..	..	6	..	..	..
Fourth Year—										
Pass	2	20	6	78	6	..	58	1	38	66
Honours	3	5	3	22	9	..	12	1	17	..
Commerce & Finance	..	..	..	..	..	..	4	..	..	..
Totals—										
Pass	14	137	34	382	25	..	304	31	94	338
Honours	22	80	91	186	50	67	143	2	45	..
Commerce & Finance	..	..	..	..	..	..	50	..	..	..

(3) Trinity College:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics	Anc. Or. Hist.
First Year—									
Pass	..	63	..	68	10	64	1	..	..
Honours	7	15	12	15	6	21	..	..	..
Commerce & Finance	..	..	..	..	..	10	..	..	..
Second Year—									
Pass	..	24	..	45	7	45	1	6	..
Honours	4	7	3	8	1	10	..	2	..
Commerce & Finance	..	..	..	..	..	3	..	..	..
Third Year—									
Pass	..	7	..	36	1	31	..	16	1
Honours	2	2	2	4	2	5	1	..	1
Commerce & Finance	..	..	..	..	..	2	..	..	..
Fourth Year—									
Pass	..	2	1	26	..	22	1	15	1
Honours	2	2	2	6	1	2	..	1	..
Commerce & Finance	..	..	..	..	..	2	..	..	..
Totals—									
Pass	..	96	1	175	18	162	3	37	2
Honours	15	26	19	33	10	38	1	3	1
Commerce & Finance	..	..	..	..	..	17	..	..	..

(4) St. Michael's College:

	Greek	Latin	Ancient History	English	German	French	Philosophy	Ethics
First Year—								
Pass.....	3	92	3	80	7	73	..	..
Honours.....	5	14	10	12	2	15	5	
Second Year—								
Pass.....	2	55	1	61	4	62	50	..
Honours.....	4	10	3	12	3	14	9	..
Third Year—								
Pass.....	2	26	..	46	..	38	35	17
Honours.....	..	2	2	5	1	6	9	9
Fourth Year—								
Pass.....	..	20	..	25	..	22	18	6
Honours.....	2	2	2	7	1	4	6	6
Totals—								
Pass.....	7	193	4	212	11	195	103	23
Honours.....	11	28	17	36	7	39	29	15

(*e*) ENROLMENT IN THE UNIVERSITY DEPARTMENTS IN ARTS:

The following tables exhibit the numbers attending lectures in the university departments in the Faculty of Arts, together with the number of those taking the practical work in the laboratories:

Department of Mathematics

	Pass	Pass and Honours	Honours
Faculty of Arts—			
First Year.....	597	179	69
Second Year.....	88	25	37
Third Year.....	33	40	19
Fourth Year.....	64	5	11
Faculty of Medicine—			
First Year.....	21	...	...
Second Year.....	3	...	...
Faculty of Applied Science and Engineering—			
First Year.....	...	206	...
Second Year.....	...	80	...
Third Year.....	...	6	...
Totals.....	806	541	136

Department of Physics

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	516	..	165	165
Second Year	10	..	70	74
Third Year	15	..	17	28
Fourth Year	13	..	38	42
Teachers' Course	..	..	12	12
Faculty of Medicine—				
First Year	..	112	..	112
Second Year	..	20	..	..
Third Year	..	17	..	8
Fourth Year	..	..	..	..
Faculty of Household Science—				
First Year	..	..	16	16
Faculty of Forestry—				
First Year	19	..	..	19
Faculty of Dentistry—				
First Year	..	30	..	30
Department of Public Health Nursing—				
First Year	8	..	..	8
Refresher Course	..	..	17	17
School of Graduate Studies—	..	..	32	18
Ontario College of Optometry—				
First Year	7	..	..	7
Totals	588	179	367	556

Department of Biology

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	516	..	85	85
Second Year	84	..	63	147
Third Year	50	..	10	60
Fourth Year	29	..	8	37
Department of University Extension	70	..	..	70
Faculty of Medicine—				
First Year	..	111	..	111
Second Year	..	34	..	..
Third Year	..	45	..	31
Faculty of Applied Science and Engineering—				
Fourth Year	..	..	..	..
Faculty of Dentistry—				
First Year	..	31	..	31
Faculty of Household Science—				
First Year	..	..	13	13
Second Year	30	..	12	42
Faculty of Forestry—				
First Year	..	18	..	18
Fourth Year	..	11	..	11
Department of Public Health Nursing	..	8	..	8
Department of Social Science—				
First Year	..	12	..	12
Second Year	..	10	..	10
Ontario Agricultural College—				
Second and Intermediate Years	..	67	..	67
Third Year	..	35	..	35
Second Year Macdonald Institute	..	73	..	73
Ontario College of Optometry		7	..	7
School of Graduate Studies	..	..	..	44
Totals	779	462	191	912

Department of Botany

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	516	..	85	85
Second Year	18	..	46	64
Third Year	31	..	6	37
Fourth Year	29	..	2	31
Faculty of Applied Science and Engineering	..	58	..	58
Faculty of Household Science—				
First Year	..	..	14	14
Second Year	43	..	9	52
Third Year	28	..	..	28
Faculty of Forestry—				
First Year	..	16	..	16
Fourth Year	..	11	..	11
School of Graduate Studies	..	..	29	22
Ontario College of Pharmacy				
First Year	139	..	..	139
Second Year	111	..	..	111
Totals	915	85	191	668

Department of Chemistry

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	516	..	156	156
Second Year	27	..	68	95
Third Year	48	..	10	16
Fourth Year	2	..	5	7
Teachers' Course	22	..	..	22
Faculty of Medicine—				
First Year	..	110	..	110
Second Year	..	87	..	87
Faculty of Applied Science and Engineering—				
First Year	..	62	..	62
Second Year	..	31	..	31
Third Year	..	98	..	98
Fourth Year	..	4	..	4
Faculty of Household Science—				
First Year	..	..	14	14
Second Year	43	..	10	53
Faculty of Forestry—				
First Year	18	..	..	18
Second Year	15	..	..	..
Faculty of Dentistry—				
First Year	..	31	..	31
Second Year	..	30	..	30
Third Year	..	29	..	29
Department of Public Health Nursing	8	..	..	8
Ontario College of Pharmacy—				
First Year	144	..	..	144
Second Year	114	..	..	114
School of Graduate Studies	..	..	35	16
Totals	957	482	298	1145

Department of Geology and Palaeontology

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	516	..	211	..
Second Year	..	..	16	16
Third Year	7	..	2	9
Fourth Year	8	..	3	11
Faculty of Applied Science and Engineering—				
Second Year	..	48	..	..
Third Year	..	32	..	18
Fourth Year	..	16	..	16
Faculty of Forestry—				
Second Year	..	16	..	..
Third Year	..	19	..	19
School of Graduate Studies	..	..	15	15
Occasional Student	..	..	1	1
Summer Session, Teachers' Courses	..	..	97	97
Totals	531	131	345	202

Department of Mineralogy and Petrography

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
Second Year	19	..	14	33
Third Year	..	..	6	2
Fourth Year	..	..	5	3
Teachers' Course	87	..	..	87
Occasional Student	1	..	..	1
Faculty of Applied Science and Engineering—				
First Year	..	90	..	90
Second Year	..	46	..	46
Third Year	..	19	..	19
Fourth Year	..	3	..	3
Faculty of Forestry—				
Second Year	..	16	..	16
School of Graduate Studies	..	..	12	12
Totals	107	174	37	312

Department of Philosophy

	Pass	Honours
Faculty of Arts—		
First Year	..	21
Second Year	62	21
Third Year	208	18
Fourth Year	116	16
Department of University Extension	50	..
Department of Social Science	18	..
School of Graduate Studies	..	38
School of Graduate Studies (St. Michael's)	..	37
Totals	454	151

Department of Psychology

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts and Household Science—				
First Year	..	..	3	..
Second Year	144	40	4	4
Third Year	61	33	4	132
Fourth Year	54	15	1	8
Department of University Extension—				
First Year	33	..	..	..
Second Year	28	..	..	..
Evening Classes	220	..	..	..
Faculty of Medicine—				
Second Year	50	..	..	..
Third Year	122	..	..	43
Fourth Year	38	..	..	..
Dept. of Social Science—				
First Year	12	..	..	..
Second Year	13	..	..	..
Dept. of Public Health Nursing—				
First Year	62	..	..	..
Fourth Year	4	..	..	..
Special Students—				
Pupil Nurses	259	..	..	..
Optometrists	9	..	..	..
Occasional Students	12	..	..	..
School of Graduate Studies	44	..	..	21
Totals	1165	88	12	208

Department of Political Science

	Pass	Honours
Faculty of Arts—		
First Year	..	213
Second Year	113	194
Third Year	110	74
Fourth Year	88	107
Department of University Extension	326	..
Faculty of Household Science—		
Second Year	36	8
Faculty of Forestry—		
Second Year	18	..
Third Year	18	..
Department of Social Science—		
First Year	16	..
Second Year	10	..
School of Graduate Studies	..	38
Occasional Students	3	..
Totals	738	634

Department of Modern History

	Pass	Honours
Faculty of Arts—		
First Year	53	145
Second Year	82	70
Third Year	100	67
Fourth Year	121	52
Department of University Extension	116	..
School of Graduate Studies	..	12
Totals	472	346

Department of Italian and Spanish

	Italian		Spanish	
	Pass	Honours	Pass	Honours
Faculty of Arts—				
First Year	18	12	120	38
Second Year	3	4	43	33
Third Year	3	5	18	18
Fourth Year	4	3	21	6
School of Graduate Studies	..	1	..	2
Totals	28	25	202	97

Department of Household Science

	Pass	Honours
Faculty of Arts—		
First Year	..	46
Second Year	..	30
Third Year	7	26
Fourth Year	11	26
Occasional Students	..	3
Faculty of Household Science—		
First Year	55	14
Second Year	44	9
Third Year	28	8
Fourth Year	37	5
Occasional student	1	..
Department of Public Health Nursing	34	..
School of Graduate Studies	..	2
Totals	217	169

Department of Food Chemistry

	Pass	Honours
Faculty of Arts—		
Third Year	14	26
Fourth Year	21	26
Candidates for Specialist Certificate	..	2
Faculty of Household Science—		
Third Year	28	8
Fourth Year	37	5
School of Graduate Studies	..	5
Totals	100	72

(*f*) REGISTRATION IN COURSES IN THE FACULTY OF ARTS

Courses	First Year				Second Year				Third Year				Fourth Year				
	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	Totals
Pass	255	83	63	84	155	88	47	62	121	70	43	44	99	93	28	27	1,362
Classics	7	8	5	4	5	5	3	3	2	6	2	..	7	3	3	2	65
Greek and Hebrew	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Oriental Languages	..	..	..	..	..	..	..	1	3	..	1	..	..	1	..	..	6
Hebrew and Ancient History	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2
Latin, French or Greek Option	3	4	2	6	..	..	..	..	..	..	..	..	..	..	..	..	15
French, Greek and Latin	..	..	..	..	..	1	..	1	2	2	..	1	1	2	..	..	10
Modern Languages	40	22	7	3	28	16	6	8	21	13	7	6	14	11	2	4	208
English and History	29	36	6	5	19	15	5	6	17	20	4	4	11	16	2	3	198
Modern History	3	9	3	1	4	7	2	..	9	11	1	..	10	6	3	..	69
Political Science and Economics	16	9	6	..	18	4	7	2	18	11	3	..	14	9	..	1	118
Law	2	7	1	..	11	1	2	2	..	..	..	..	..	..	..	..	26
Philosophy	1	..	..	1	5	5	2	8	4	6	..	9	2	8	1	5	57
Philosophy (English or History Option)	1	11	..	2	3	3	..	1	..	5	..	..	2	1	..	1	30
Psychology	3	..	..	..	4	..	..	..	3	1	..	..	1	..	..	..	12
Mathematics	7	3	..	1	4	..	1	..	2	6	..	..	2	2	..	..	27
Mathematics and Physics	20	25	2	3	11	12	2	3	4	6	1	..	7	8	..	..	104
Physics and Chemistry	2	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	5
Physics and Geology	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Natural and Physical Sciences	21	18	3	1	..	..	..	..	..	..	..	..	..	..	..	..	43
Physics	..	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	3
Biology	..	..	..	..	2	4	1	..	4	1	1	..	..	2	..	..	15
Physiology and Biochemistry	..	..	..	..	..	2	..	..	2	1	..	..	3	..	..	..	8
Biological and Medical Sciences	..	..	..	..	8	5	2	1	8	9	2	..	12	3	2	..	52
Chemistry	..	..	..	..	4	1	..	..	2	1	1	..	2	..	..	..	11
Chemistry, Mineralogy and Geology	..	..	..	..	8	..	..	..	1	..	..	..	..	1	..	..	10
Geology and Mineralogy	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	2
Science (General)	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Household Economics	18	25	1	1	15	14	..	1	14	11	1	..	16	8	2	1	128
Commerce and Finance (B.Comm.)	112	38	10	4	76	20	9	..	24	14	4	1	27	4	4	..	347
Registered twice	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Totals	540	298	109	117	380	203	90	99	263	196	71	65	232	180	48	44	2,935

(g) REGISTRATION IN COURSES IN THE SCHOOL OF GRADUATE STUDIES

	Ph.D.	M.A.	Ch.M.	M.A.Sc.	C.E.	E.E.	D.Paed.	M.S.A.	Grad.
Dept. of Anthropology	..	2	..	..	..	..	..	..	..
" " Astronomy	..	1	..	..	..	..	..	..	..
" " Biochemistry	3	4	..	..	..	..	..	1	1
" " Biology	9	4	..	..	..	..	..	10	6
" " Botany	16	7	..	..	..	..	..	..	8
" " Chemical Engineering	..	..	..	4	..	..	..	..	..
" " Civil Engineering	..	..	..	..	3	..	..	..	..
" " Chemistry	1	15	..	..	..	..	..	4	2
" " Classics	2	7	..	..	..	..	..	..	8
" " Educational Theory	..	4	..	..	..	..	..	..	..
" " Electrical Engineering	..	..	..	..	..	1	..	..	..
" " English	1	10	..	..	..	..	..	..	18
" " Epidem. & Biometrics	1	1	..	..	..	..	..	..	..
" " Food Chemistry	..	2	..	..	..	..	..	..	2
" " Geology	5	7	..	..	..	..	..	..	2
" " German	..	4	..	..	..	..	..	..	..
" " History	3	6	..	..	..	..	..	..	4
" " Household Science	..	2	..	..	..	..	..	..	..
" " Hygiene and Prev. Med	3	..	..	..	..	..	..	..	..
" " Mathematics	3	4	..	..	..	..	..	..	3
" " Metallurgy	..	..	..	1	..	..	..	..	..
" " Mineralogy	3	..	..	..	..	..	..	..	..
" " Mining Engineering	..	..	..	1	..	..	..	..	..
" " Pathology and Bacteriology	2	..	..	..	..	..	..	..	2
" " Pathological Chemistry	1	2	..	..	..	..	..	..	..
" " Pedagogy	..	..	..	..	..	..	56	..	..
" " Pharmacology	..	1	..	..	..	..	..	..	..
" " Philosophy	10	34	..	..	..	..	..	..	33
" " Physics	11	9	..	..	..	..	..	..	4
" " Physiology	1	3	..	..	..	..	..	..	..
" " Physiol. Hygiene	1	1	..	..	..	..	..	..	..
" " Political Science	4	12	..	..	..	..	..	3	9
" " Psychology	2	9	..	..	..	..	..	..	26
" " Romance Languages	2	10	..	..	..	..	..	..	8
" " Semitic Languages	3	1	..	..	..	..	..	..	2
" " Surgery	..	..	1	..	..	..	..	..	..
" " Special Committee		1	..	..	..	..	..	..	..
Totals	87	164	1	6	3	1	56	18	138

(*h*) RESULTS OF THE ANNUAL EXAMINATIONS

FACULTY OF ARTS

First Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	234	75	58	74	441	172	120	149	..	4	..	55
Supplementals	..	63	28	15	21	127	100	27	..	..	..	..	..
Classics	..	6	7	4	3	20	16	1	..	3	..	..	..
Latin (French or Greek Option)	..	3	5	2	6	16	11	..	..	5	..	..	..
English and History	..	28	35	6	5	74	47	1	..	26	1	..	..
Modern Languages	..	40	22	7	3	72	65	..	1	6	4	..	..
Mod. Hist., Political Science and Law	..	21	24	8	..	53	35	1	..	17	1	..	2
Philosophy	..	1	..	..	1	2	1	1	..	..	..	..	1
Philosophy (English or Hist. Option)	..	2	10	..	2	14	11	..	..	3	..	..	..
Psychology	..	3	..	..	..	3	2	1	..	..	..	..	1
Mathematics	..	7	3	..	1	11	7	2	..	2	1	..	1
Maths. & Phys., Phys. & Geol. and Phys. & Chem	..	22	23	1	4	50	39	4	..	7	1	..	1
Natural and Physical Sciences	..	20	17	3	1	41	29	9	1	2	..	2	5
Household Economics	..	17	25	1	1	44	38	..	..	6	..	..	..
Commerce and Finance	..	107	36	9	3	155	84	28	4	39	2	5	..
Occasional Students	..	8	..	..	1	10	10	..	..	..	..	..	..
Totals	..	582	311	114	126	1133	667	194	156	116	14	7	66

Second Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	140	84	46	58	328	178	93	57	..	21	..	28
Supplementals	..	31	12	6	9	58	42	16	..	..	2	..	1
Classics	..	5	5	3	3	16	13	3	..	..	..	..	..
Oriental Languages	..	..	..	..	..	..	..	..	..	..	..	..	..
Hebrew and Ancient History	..	..	..	..	..	..	..	..	..	..	..	..	..
Latin (French or Greek Option)	..	..	1	..	..	1	..	..	1	..	..	..	..
French, Greek and Latin	..	..	..	..	1	1	1	..	..	..	..	..	..
English and History	..	19	15	4	6	44	29	..	..	15	3	..	..
Modern Languages	..	27	17	6	8	58	49	1	..	8	3	..	..
Modern History	..	3	7	1	..	11	7	..	..	4	..	..	..
Political Science and Economics	..	18	3	6	1	28	19	2	..	7	2	..	..
Law	..	10	1	3	2	16	14	..	..	2	..	..	..
Philosophy	..	6	4	2	7	19	12	6	..	1	..	1	3
Philosophy (English or Hist. Option)	..	2	3	..	1	6	5	..	1	..	1	..	..
Psychology	..	4	..	..	..	4	1	3	..	..	2	1	1
Mathematics	..	4	..	1	..	5	2	..	1	2	..	..	..
Mathematics and Physics	..	11	11	2	3	27	15	1	4	7	1	..	..
Physics and Chemistry	..	..	..	1	..	1	1	..	..	..	..	..	..
Physics	..	1	..	..	..	1	..	..	..	1	..	..	..
Biology	..	2	4	1	..	7	4	3	..	..	..	2	2
Physiology and Biochemistry and Biological and Medical Sciences	..	8	7	2	1	18	7	5	1	5	2	..	2
Chemistry	..	4	1	..	..	5	2	1	1	1	1	..	..
Chemistry, Mineralogy and Geology	..	8	..	..	..	8	6	2	..	..	..	1	1
Household Economics	..	15	14	..	1	30	16	8	2	4	..	2	2
Commerce and Finance	..	74	20	10	..	104	62	10	6	26	3	..	4
Occasional Students	..	5	..	..	1	6	6	..	..	..	..	..	..
Registered twice	..	1	..	..	..	1	1	..	..	..	..	..	..
Totals	..	396	209	94	102	801	490	154	74	83	41	7	44

Third Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Starred	Failed	Transferred	Aegrotat	Deferred	Debarred
Pass	..	117	71	42	42	272	206	48	18	..	10	..	17
Supplementals	..	9	10	2	8	29	25	4	..	..	..	..	..
Classics	..	2	5	2	..	9	8	1	..	..	1	..	..
Oriental Languages	..	3	..	1	..	4	4	..	..	..	1	..	..
Hebrew and Ancient History	..	1	1	..	..	2	2	..	..	..	..	..	..
French, Greek and Latin	..	2	2	..	..	4	4	..	..	..	..	..	..
English and History	..	17	20	4	4	45	41	..	1	3	3	..	..
Modern Languages	..	18	13	5	6	42	37	3	..	2	1	..	..
Modern History	..	9	10	1	..	20	19	..	..	1	..	..	1
Political Science (Economics)	..	4	12	3	..	19	15	1	..	3	..	..	..
Political Science (Law)	..	13	..	..	..	13	12	..	..	1	..	..	..
Philosophy	..	5	5	..	8	18	15	2	..	1	..	..	..
Philosophy (English or History Option)	..	..	5	..	..	5	5	..	..	..	1	..	..
Psychology	..	3	1	..	..	4	4	..	..	..	1	..	..
Mathematics	..	4	5	1	..	10	6	..	..	4	..	..	1
Mathematics and Physics	..	3	6	..	..	9	9	..	..	..	1	..	1
Physics and Chemistry	..	1	..	..	..	1	..	1	..	..	..	..	..
Biology	..	3	2	1	..	6	6	..	..	..	..	..	..
Physiology and Biochemistry	..	2	1	..	..	3	2	1	..	..	..	..	..
Biological and Medical Sciences	..	6	9	2	..	17	17	..	..	..	..	..	..
Chemistry	..	2	1	1	..	4	4	..	..	..	..	..	..
Chemistry, Mineralogy and Geology II	..	1	..	..	..	1	1	..	..	..	..	..	..
Geology and Mineralogy	..	..	1	..	..	1	1	..	..	..	..	..	..
Household Economics	..	14	11	1	..	26	23	1	..	2	1	1	1
Commerce and Finance	..	23	14	4	1	42	33	6	..	3	2	..	1
Occasional Students	..	2	..	1	..	3	3	..	..	..	..	..	..
Totals	..	264	205	71	69	609	502	68	19	20	22	1	22

Fourth Year

	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Starred	Failed	Aegrotat	Pass Degree
Pass	..	97	94	27	27	245	221	14	10	11	..
Supplementals	..	2	2	1	2	7	7	..	..	..	..
Classics	..	7	3	3	2	15	15	..	..	2	1
Oriental Languages	..	..	1	..	..	1	1	..	..	..	..
French, Greek and Latin	..	1	2	..	..	3	3	..	..	..	..
English and History	..	11	16	1	3	31	31	..	..	..	..
Modern Languages	..	14	11	2	4	31	31	..	..	..	1
Modern History	..	11	5	3	..	19	18	1	..	..	2
Political Science (Economics)	..	8	4	..	1	13	13	..	..	..	..
Political Science (Politics and Law)	..	6	5	..	..	11	10	..	1	..	1
Philosophy	..	2	8	1	5	16	14	2	..	..	..
Philosophy (English or History Option)	..	2	1	..	1	4	4	..	..	..	..
Psychology	..	1	..	..	..	1	1	..	..	..	..
Mathematics	..	2	2	..	..	4	4	..	..	..	..
Mathematics and Physics I	..	2	4	..	..	6	6	..	..	..	..
Mathematics and Physics II	..	5	3	..	..	8	8	..	..	..	..
Mathematics and Physics III	..	..	1	..	..	1	1	..	..	..	..
Physics and Geology	..	..	..	1	..	1	1	..	..	..	..
Physics	..	1	1	..	..	2	2	..	..	..	..
Biology	..	..	2	..	..	2	2	..	..	..	..
Physiology and Biochemistry	..	3	..	..	..	3	3	..	..	..	..
Biological and Medical Sciences	..	12	3	2	..	17	17	..	..	..	2
Chemistry	..	2	..	..	..	2	2	..	..	..	..
Chemistry, Mineralogy and Geology I	..	..	1	..	..	1	1	..	..	..	..
Geology and Mineralogy	..	..	1	..	..	1	1	..	..	..	..
Science (General)	..	1	..	..	..	1	1	..	..	..	..
Household Economics	..	16	7	2	1	26	26	..	..	..	..
Commerce and Finance	..	27	4	4	..	35	33	2	..	..	..
Occasional Students	..	2	..	..	..	2	2	..	..	..	..
Totals	..	235	181	47	46	509	479	19	11	13	7

TEACHERS' CLASSES

All Years

	Passed	Starred	Total
May Examination	192	78	270
September Examination	174	51	225
	366	129	495
Duplicates			102
Totals			393

FACULTY OF MEDICINE

	Passed	Starred	Failed
First Year	65	34	7
Second Year	72	20	1
Third Year	89	11	5
Fourth Year	135	10	2
Fifth Year	114	18	2
Sixth Year	97	10	..
Diploma in Public Health	13	..	..
B.Sc. (Med.)	6	..	..
Totals	591	103	17

FACULTY OF APPLIED SCIENCE AND ENGINEERING

	Passed with Honours	Passed	Starred	Failed
First Year—				
Civil Engineering	3	24	16	4
Mining Engineering	2	20	10	7
Mechanical Engineering	5	50	21	15
Architecture	1	14	5	3
Chemical Engineering	8	39	11	10
Electrical Engineering	8	38	16	11
Metallurgical Engineering	..	2	1	1
Second Year—				
Civil Engineering	3	16	10	2
Mining Engineering	4	17	8	..
Mechanical Engineering	6	27	15	11
Architecture	3	5	1	1
Chemical Engineering	7	14	5	4
Electrical Engineering	4	24	10	4
Metallurgical Engineering	..	3	1	..
Third Year—				
Civil Engineering	1	9	2	1
Mining Engineering	1	15	5	..
Mechanical Engineering	4	24	8	2
Architecture	2	5	3	..
Chemical Engineering	14	19	6	..
Electrical Engineering	6	30	15	4
Metallurgical Engineering	1	5	3	..
Fourth Year—				
Civil Engineering	2	14	6	..
Mining Engineering	6	8	3	..
Mechanical Engineering	7	13	3	
Architecture	1	5	1	..
Chemical Engineering	7	18	..	..
Electrical Engineering	13	17	7	1
Metallurgical Engineering	..	5	2	..
Totals	119	480	194	81

FACULTY OF HOUSEHOLD SCIENCE

	Passed	Starred	Transferred to Pass Course	Failed
First Year	41	11	4	16
Second Year	37	11	2	4
Third Year	25	5	1	5
Fourth Year	37	2	..	2
Totals	140	29	7	27

ONTARIO COLLEGE OF EDUCATION

	Passed	Failed
*High School Assistants' Course	340	..
Specialists' Courses	104	..
First Class Public School Course	22	..
Elementary Art Course	42	..
Specialists' Art Course	17	..
Elementary Commercial Course	3	..
Elementary Music Course	6	..
Elementary Physical Education Course	143	..
Specialists' Physical Education Course	44	..
One Year Household Science Course	18	..
Librarians' Course	23	..
Bachelor of Pedagogy Course	41	..
Bachelor of Pedagogy Course (passed in part)	86	..
Number who failed in whole or part	..	52
Totals	889	52

*Many of these are included among those who passed or failed in the other courses in this list.

FACULTY OF FORESTRY

	Honours	Starred	Failed
First Year	5	8	3
Second Year	11	2	3
Third Year	12	6	1
Fourth Year	11	..	..
Totals	39	16	7

FACULTY OF MUSIC

	Passed	Starred	Failed
First Year	9	2	5
Second Year	7	2	4
Third Year	2	1	2
Doctor of Music	..	1	..
Totals	18	6	11

FACULTY OF DENTISTRY

	Passed	Starred	Failed
First Year	20	8	2
Second Year	23	6	1
Third Year	26	3	..
Fourth Year	53	8	..
Fifth Year	64	..	..
Supplementals, student not in attendance	1	..	..
B.Sc. (Dent.) Candidates	6	..	..
Dental Nurses	16	2	1
Totals	209	27	4

DEPARTMENTS

The numbers examined in the different departments of the University, including those persons granted standing for military service, were as follows:

Arts:		
Fourth Year	509	
Third Year	609	
Second Year	801	
First Year	1133	
Teachers' Course	393	
Graduates (Specialist Standing)	44	
		3,489
Medicine:		
Sixth Year	107	
Fifth Year	134	
Fourth Year	147	
Third Year	105	
Second Year	93	
First Year	106	
D.P.H.	13	
B.Sc. (Med.)	6	
		711
Applied Science and Engineering:		
Fourth Year	117	
Third Year	143	
Second Year	155	
First Year	117	
		680
Household Science		196
Education		543
Forestry		62
Music		35
Graduate Studies		400
Dentistry		240
Social Science		82
Public Health Nursing		41
Law		12
Pharmacy		253
Agriculture		38
Veterinary Science		15
Local Examinations in Music		20,706

(*i*) ADMISSION TO DEGREES:

	Men	Women	Total
LL.D. (Honorary)	6	...	6
D.Sc. "	1	...	1
Ph.D	14	5	19
M.A	72	27	99
M.D	158	19	177
Ch.M	..	...	...
M.A.Sc	2	...	2
C.E	2	...	2
E.E	1	...	1
D.Paed	5	...	5
M.S.A	3	...	3
B.A	228	255	483
B.Comm	31	3	34
M.B	...	...	...
B.Sc. (Med)	6	...	6
B.A.Sc	97	...	97
B.Arch	5	1	6
B.H.Sc	...	40	40
B.Paed	36	5	41
B.Sc.F	11	...	11
Mus. Bac	1	1	2
LL.B	3	...	3
D.D.S	75	1	76
B.Sc. (Dent)	6	...	6
B.S.A	35	...	35
B.V.Sc	16	...	16
Phm.B	113	4	117
D.V.Sc	1	...	1
Totals	928	361	1,289

(*j*) GEOGRAPHICAL DISTRIBUTION OF STUDENTS:

FACULTY OF ARTS

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Duplicates	Totals
Ontario: (1) Province	405	548	514	147	134	15	1,733
(2) Toronto	293	831	300	150	153	10	1,717
Nova Scotia	..	2	..	3	..	..	5
New Brunswick	..	5	4	1	1	..	11
Prince Edward Island	..	2	1	..	..	..	3
Quebec	3	1	..	1	4	..	9
Manitoba	1	3	1	..	1	..	6
Saskatchewan	2	15	25	1	4	..	47
Alberta	1	9	12	3	3	..	28
British Columbia	..	4	4	..	..	..	8
Yukon	..	2	..	..	..	..	2
United States	5	21	5	10	40	..	81
Elsewhere	3	12	17	3	1	..	36
Duplicate registrations	..	..	..	..	..	..	..
Totals	713	1,455	883	319	341	25	3,686

THE UNIVERSITY

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	Department of Public Health Nursing	Course in Occupational Therapy	Course for Graduate Nurses	Physiotherapy	Registered Twice	TOTALS
Ontario:																
(1) Province	1,733	329	356	76	363	29	13	145	114	39	146	18	11	3	22	3,353
(2) Toronto	1,717	347	302	113	195	24	18	217	69	32	69	31	8	8	16	3,134
Nova Scotia	5	3	1	..	2	1	..	12	1	3	2	..	..	..	..	30
New Brunswick	11	..	..	..	6	..	1	9	..	2	3	..	..	..	..	32
Prince Edward Island	3	..	..	..	..	..	..	2	1	2	2	..	1	..	..	11
Quebec	9	8	..	1*	8	1	1	3	2	1	..	..	..	..	..	34
Manitoba	6	1	1	..	10	1	1	15	25	3	1	..	..	..	1	63
Saskatchewan	48	21	19	1	11	1	2	16	20	1	7	..	..	..	1	146
Alberta	27	10	7	4	2	1	..	3	3	..	1	..	2	..	1	59
British Columbia	8	28	4	4	5	..	..	18	2	4	1	..	..	..	1	73
Yukon	2	1	1	..	..	..	..	..	..	..	.	.	..	..	..	4
United States	81	9	5	3	11	..	5	18	8	1	4	1	1	..	..	147
Elsewhere	36	12	5	1	6	4	..	16	2	1	9	..	..	1	1	92
Totals	3,686	769	701	203	619	62	41	474	247	89	245	50	23	12	43	7,178

THE PROVINCE OF ONTARIO

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	Department of Public Health Nursing	Course in Occupational Therapy	Course for Graduate Nurses	Physiotherapy	Registered Twice	TOTALS
Algoma	25	9	9	3	3	1	..	..	2	..	..	..	..	..	2	50
Brant	37	8	12	1	10	..	1	1	2	..	3	1	1	..	..	77
Bruce	35	8	4	..	6	..	..	1	6	3	7	..	..	..	..	70
Carleton	83	10	10	8	20	1	..	15	7	1	2	..	1	..	1	157
Cochrane	6	..	..	..	..	..	..	..	..	1	..	..	..	..	..	7
Dufferin	17	4	3	1	5	..	..	2	2	..	..	..	..	..	..	34
Dundas	11	..	1	..	..	..	..	..	..	..	1	..	..	..	..	13
Durham	22	4	3	2	5	..	1	3	..	..	9	..	..	..	..	49
Elgin	22	4	3	1	10	..	..	3	1	..	1	..	..	..	..	45
Essex	58	13	10	2	15	3	..	4	9	1	1	..	..	..	2	114
Frontenac	6	1	..	2	9	..	..	2	2	1	1	..	..	..	..	24
Glengarry	6	1	..	..	4	..	..	..	..	..	..	..	..	..	..	11
Grenville	6	1	1	..	5	..	..	5	..	1	1	..	1	..	..	21
Grey	54	4	13	2	13	..	..	..	2	1	5	.	..	..	1	93
Haldimand	27	6	11	1	9	..	..	2	..	..	..	3	..	..	..	59
Haliburton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Halton	41	7	12	5	7	..	..	4	1	1	1	1	..	..	..	80
Hastings	22	5	3	..	4	..	..	4	3	3	6	..	..	..	..	50
Huron	33	10	13	..	15	2	..	1	2	..	10	..	..	..	..	86
Kenora	5	..	2	..	2	..	..	..	1	..	..	..	..	..	..	10
Kent	17	5	3	1	4	..	..	1	1	..	..	..	..	..	1	31
Lambton	35	5	6	..	6	1	..	4	5	1	..	..	..	..	..	63
Lanark	26	2	4	..	11	..	1	6	6	1	1	..	..	..	..	58
Leeds	12	1	4	1	5	1	..	1	2	..	3	..	..	..	..	30
Lennox & Addington	10	..	2	2	3	..	..	..	..	..	..	..	..	..	2	15
Lincoln	53	11	11	5	4	1	1	4	1	..	3	1	..	..	..	95
Manitoulin	5	..	1	..	2	..	..	..	..	..	..	..	..	..	1	7
Middlesex	24	2	12	2	28	1	..	13	5	2	3	..	1	..	..	93
Muskoka	18	1	7	..	2	1	..	3	2	..	1	..	..	..	..	35
Nipissing	12	12	2	1	6	..	..	3	2	..	7	3	..	..	..	48
Norfolk	18	8	4	1	7	..	1	3	5	..	..	1	..	..	1	47
Northumberland	33	6	4	..	6	..	..	1	2	..	7	..	..	..	1	58
Ontario	58	8	8	4	4	..	..	2	3	..	3	..	..	..	..	90
Oxford	37	9	17	..	7	2	..	1	..	..	2	..	..	..	..	75
Parry Sound	9	1	2	..	1	..	..	1	1	..	2	..	..	..	.	17
Peel	47	12	8	3	1	..	..	..	1	..	7	..	1	..	2	78
Perth	61	12	12	..	6	2	..	4	2	1	1	2	1	..	2	102
Peterborough	35	5	5	2	4	..	..	2	1	2	2	..	1	..	..	59
Prescott	4	..	..	..	7	..	..	..	..	..	..	..	..	..	..	11
Prince Edward	1	1	..	..	5	..	..	..	..	..	..	1	..	..	..	8
Rainy River	12	1	..	..	..	..	..	..	..	..	..	..	..	..	..	13
Renfrew	25	2	1	..	10	2	..	2	2	..	1	..	..	..	1	44
Russell	1	1	1	..	1	..	..	..	..	..	..	..	..	..	..	4
Simcoe	95	21	13	6	14	2	1	4	6	5	11	..	..	..	..	178
Stormont	11	1	1	..	..	..	..	..	..	..	..	..	..	..	..	13
Sudbury	13	..	2	..	2	..	..	..	..	..	..	..	..	..	..	17
Thunder Bay	14	3	14	..	5	2	1	..	4	2	1	..	..	..	..	46
Timiskaming	9	2	6	1	2	1	..	1	1	..	1	..	..	..	..	24
Victoria	25	4	5	2	9	..	..	1	1	..	2	..	..	..	..	49
Waterloo	64	14	12	3	8	..	..	4	3	..	5	..	1	..	..	114
Welland	53	11	8	1	3	..	1	1	2	..	2	..	..	..	..	82
Wellington	65	16	8	2	12	..	1	16	2	..	9	..	1	..	1	131
Wentworth	191	31	23	7	17	2	3	13	8	11	3	3	..	..	4	308
York	124	26	40	4	19	4	1	7	6	1	21	2	2	3	..	260
Toronto	1,717	347	302	113	195	24	18	217	69	32	69	31	8	8	16	3,134
Totals	3,450	676	658	189	558	53	31	362	183	71	215	49	19	11	38	6,487